Aalto University
School of Business

SUSTAINABILITY REPORTING TRANSPARENCY AMONG FRONT-RUNNERS OF THE PRACTICE

An embedded single case study from the Finnish forest, paper, and pulp industry

Master's Thesis
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Abstract of Master's Thesis

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Abstract

Amid grave social problems such as global warming and biodiversity loss, sustainability reporting has emerged as a central medium for companies to engage and communicate with their stakeholders on such concerns and how they strive to act responsibly. However, in the academic literature there is a debate on the outright usefulness of sustainability reporting as a practice that seems to boil down to questions over how voluntary this reporting should be. Is sustainability reporting an effective tool to aid sustainable development or a mere PR stunt for companies to maintain legitimacy in an era of corporate distrust?

The thesis proposes transparency to be a key determinant of sustainability reporting quality and usefulness. By examining front-runners of sustainability reporting in an industry intimately tied to both global warming and biodiversity, the thesis hopes to explore and describe the prevalent level of sustainability reporting transparency via an embedded single case study from the Finnish forest, paper and pulp industry.

This study has examined three case companies to answer research questions regarding what is the current level of sustainability reporting transparency among the front-runners of sustainability reporting on their environmental impacts, how companies approach the disclosure of negative environmental information in relation to their operations, and how comparable the disclosed information is between the sustainability reports of companies from the same industry, with similar geographical operating areas and the same sustainability reporting guideline. To explore and describe prevalent sustainability reporting transparency on environmental impacts, the thesis has devised and implemented a theoretical framework based on previous research to approach the research questions from the point of view of five research variables: stakeholder inclusiveness, balance of information, reporting boundaries, internal organizational factors, and comparability. The empirical data consists of sustainability reports, which have been analyzed using the study's theoretical framework to utilize a theory-driven thematic analysis method.

The findings point to a considerable lack of transparency that still permeates the sustainability reporting practice with regards to companies' environmental impacts and performance, even among the front-runners of sustainability reporting. Disclosing negative information appears to be particularly challenging for companies and the comparability of the disclosed information between the sustainability reports can be described as limited due to variations in disclosure methods. The findings could be seen to hold implications for both the reporting practice and practitioners as well as various stakeholder groups, such investors, regulators, and consumers.

Keywords sustainability reporting, transparency, environmental accounting

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Työn nimi Vastuullisuusraportoinnin läpinäkyvyys raportoinnin edelläkävijöiden keskuudessa: Tapaustutkimus suomalaisesta metsä-, paperi- ja selluteollisuudesta

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Tiivistelmä

Ilmastonmuutoksen ja luonnon monimuotoisuuden vähenemisen kaltaisten ongelmien edessä yritysten sidosryhmätyön ja -viestinnän yhdeksi keskeiseksi keinoksi on noussut vastuullisuusraportointi, jonka avulla yritykset kertovat sidosryhmilleen vastuullisuustoimistaan. Akateemisessa kirjallisuudessa on kuitenkin nähtävissä väittelyä siitä, kuinka hyödyllinen käytäntö vastuullisuusraportointi lopulta yhteiskunnallisesti oikein on. Näkemykset vaihtelevat kestävää kehitystä tukevasta työkalusta pelkkään julkisuustemppuun, jolla yritykset yrittäisivät vain säilyttää yhteiskunnallisen hyväksynnän toimilleen aikana, jolloin luottamus yrityksiin on heikkoa. Olennaisena osana tätä väittelyä voidaan katsoa olevan kysymys siitä, kuinka vapaaehtoista ja vapaamuotoista vastuullisuusraportoinnin tulisi olla yrityksille.

Tämä pro gradu- tutkielma esittää läpinäkyvyyden olevan keskeinen edellytys laadukkaalle ja yhteiskuntaa hyödyttävälle vastuullisuusraportoinnille. Tarkastelemalla vastuullisuusraportoinnin edelläkävijöitä ilmastonmuutokseen ja luonnon monimuotoisuuteen intiimisti sidoksissa olevalla toimialalla tutkimus pyrkii tutkimaan ja kuvailemaan vastuullisuusraportoinnin läpinäkyvyyden nykytilaa suomalaiseen metsä-, paperi- ja selluteollisuuteen sijoittuvan tapaustutkimuksen kautta.

Tutkielma tarkastelee kolmen yrityksen vastuullisuusraportointia teoriapohjaisen temaattisen analyysin avulla etsiessään vastauksia seuraaviin tutkimuskysymyksiin: mikä on vastuullisuusraportoinnin läpinäkyvyyden nykyinen taso vastuullisuusraportoinnin edelläkävijöiden keskuudessa yritysten ympäristövaikutusten osalta; kuinka yritykset julkaisevat tietoa liiketoimintansa haitallisista ympäristövaikutuksista ja ekologisesta suoriutumisesta; sekä kuinka vertailtavia julkaistut tiedot ovat yritysten välillä, jotka tulevat samalta toimialalta, toimivat samanlaisella maantieteellisellä alueella ja noudattavat samaa kestävän kehityksen raportointiohjetta. Vastatakseen näihin tutkimuskysymyksiin, tutkielma hyödyntää aiempaan akateemiseen tutkimukseen pohjautuvaa teoreettista viitekehystä, jonka muuttujia ovat sidosryhmien osallistaminen, julkaistun tiedon tasapainoisuus, raportointiin sovellettavat organisaatio- ja liiketoimintarajat, yritysten sisäiset organisatoriset tekijät, sekä julkaistun tiedon vertailtavuus.

Tutkimuksen tulokset osoittavat yritysten ympäristövaikutusten ja suoriutumisen läpinäkyvyyden olevan vielä rajallista vastuullisuusraportoinnissa – jopa edelläkävijöiden keskuudessa. Erityisesti epäimartelevista tiedoista viestiminen vaikuttaa olevan haastavaa yrityksille. Lisäksi julkaistun tiedon vertailtavuus vastuullisuusraporttien välillä on rajallista raportointitapojen monimuotoisuudesta johtuen. Tutkimuksen löydöksistä on mahdollista johtaa suosituksia yritysvastuuammattilaisille raportoinnin kehittämiseen sekä useille sidosryhmille raporttien tulkitsemiseen.

Avainsanat vastuullisuusraportointi, läpinäkyvyys, avoimuus

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1. INTRODUCTION

1.1. Background

This study represents an important avenue for research because our planetary ecosystem is in a truly alarming state. For example, the IPCC (2018) report highlighted an urgent need for drastic actions to limit global warming to 1.5 degrees Celsius to prevent catastrophic environmental consequences. Moreover, IPBES (2019) has indicated that the state of global biodiversity is similarly dire with more species being threatened by global extinction due to human activities than ever before.

Consequently, consumer demand for responsible products and services has increased around the globe; investors such as Blackrock, the world's largest asset manager, are placing sustainability at the core of their investment decisions (Blackrock, n.d.); and governments around the world have started to draft corporate responsibility legislation that requires due diligence from business entities to safeguard human rights and the environment (e.g. Finnish Ministry of Economic Affairs and Employment, 2019). There are two things that these key stakeholder groups require from companies: CSR actions and information. All these developments highlight why research on sustainability reporting is so important; because of the potential that sustainability reporting could be seen to hold as a tool to help investors, policymakers, consumers, and other stakeholders to make environmentally conscious decisions.

If we do not have tools to monitor and track emission levels and other environmental impacts and do not know companies' true emission counts and other impacts, it will be more difficult to make informed decisions and take decisive action to combat global warming. Sustainability reports could be argued to have the potential to aid the fight against global warming through their abilities to inform stakeholders and to help companies plan and strive for continuous improvement on environmental and social grievances. However, for sustainability reporting to be an effective tool for solving social

problems via enhanced corporate accountability and improved non-financial performance, the practiced reporting must be transparent.

This means that sustainability reporting should enable companies' stakeholders to have an accurate, truthful, and balanced image of the companies' environmental impacts based on the practiced sustainability reporting. There should not be any secrets with regards to the company's impacts nor should they be grossly understated. To facilitate that stakeholders would be able to see the full picture of a company's operations, there have been calls in the academic literature e.g. for broader reporting boundaries (Antonini and Larrinaga, 2017), greater comparability, greater balance of positive and negative information (Zsóka and Vajkai, 2018), and inclusion of internal organizational factors (Thijssens et al., 2016) to increase transparency and improve sustainability reporting quality.

This study could be seen to address these issues and assess whether these kind of calls from researchers have solicited a response from companies. This is done by presenting a case from the forest, paper, and pulp industry, which could be argued in many ways to be situated at the core of both the carbon emission and biodiversity debates through its impact on forests, which act as homes to countless species and as carbon sinks that store and remove carbon emissions from the air. However, even though this study examines sustainability reports, and overlaps with the theme of sustainable development, in the end this study is primarily carried out from a corporate responsibility perspective.

The difference to sustainability research, which could be said to focus on the interdependencies of economics, society, and environment for the purpose of discovering how systems can be sustained through time, is that responsibility research could be described to deal with companies' moral responsibilities to society and environment (Banzal & Song, 2017). This is because in sustainability reporting the choices that are made by the people in charge of drafting the reports regarding where the line is drawn e.g. in terms of reporting boundaries, matters a great deal. Depending on the boundary, the outcome can present vastly different figures.

Therefore, the choices that are made e.g. with regards to the reporting boundaries (and, as an extension, with regards to the level of sustainability reporting transparency) become crucial. These choices are made by people and they can be arbitrary or circumspect and opportunistic or conscientious. This example of selecting reporting boundaries underlines the moral responsibility of companies to society and environment as well as demonstrates the importance of transparency through how the portrayed image can change depending on how the information has been cropped.

1.2. Research problem and questions

The selected research area for this Master's thesis is sustainability reporting and the aspect of interest within this area is sustainability reporting's transparency. Personal interest and contemporary developments in society (the aforementioned reports from IPCC and IPBES) served as the impetus for the researcher to choose this specific research area, because the IPCC and IPBES reports' key messages put forward a number of issues that need to be addressed also in the realm of business. Based on the conducted literature review, it seems that sustainability reporting remains still an avenue for research with relatively limited research contributions, albeit the number of studies in the field seems to have proliferated somewhat in recent years.

In a sense, the relatively small overall number of studies is understandable because of the somewhat recent nascence of the phenomenon in the 1990s and since the practice of reporting non-financial information could still be seen to continue to develop. Even though e.g. in Finland the Accounting Act (1336/1997) has effectively placed an obligation on certain large entities to report some non-financial information since the beginning of 2017, the reporting of non-financial information has not yet reached the same level of maturity and sophistication as financial information. In fact, a topic of debate within the sustainability reporting literature seems to be the outright usefulness of the entire practice.

The debate deals with whether sustainability reporting is a useful practice for improving companies' sustainability performance through corporate accountability or a mere PR stunt to maintain legitimacy and boost sales. Central to this debate seems to be how much freedom companies should have with regards to practicing sustainability reporting. This debate in the literature also presents the thesis with its research gap as there simply does not yet seem to exist sufficient information on how to optimally conduct and utilize sustainability reporting to help solve some the big questions of our time in global warming, biodiversity loss, and sustainable use of natural resources.

In fact, there does not really seem to exist a singular universal reporting standard (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009; Fortanier et al., 2011; Crawford & Williams, 2011) or definition (Zsóka & Vajkai, 2018; Roca & Searcy, 2012) for sustainability reporting. Even though a significant body of literature seems to have accumulated on identifying the various factors that interplay to influence sustainability reporting quality, there still seems to exist a large variety of sustainability reports in terms of content and quality (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009; Fortanier et al., 2011). Due to this lack of comparability, sustainability reports have been found to be "of limited use, as they lack a standardized format" (Crawford & Williams, 2011: 341).

Furthermore, these reported variations in content and quality have been seen to be partly due to the different institutional environments between countries (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009; Fortanier et al., 2011). Even though there exists a significant body of literature on differences in sustainability reporting practices between countries, industries and cultures, the existing research seems rather scattered or limited in terms of the countries and industries that have been used as a research context. As a research gap, this study's literature review did not come across any similar academic studies examining sustainability reporting transparency in the Finnish context.

Moreover, even with the current sustainability reporting guidelines, companies still seem to hold considerable control over what they include in their sustainability reports (Beare

et al., 2013) and how the information is presented, while the selected information "may benefit the firm but not necessarily the user" (Crawford & Williams, 2011: 345). Companies with very different sustainability management practices have been found to have equally exemplary sustainability reports, but despite of this it has been seen as "difficult to say anything meaningful about a company's sustainability performance on the basis of the sustainability report" (Thijssens et al., 2016: 99).

This thesis considers this to be an area of concern and a condition that should be improved upon. Here also lies the research problem for this thesis: companies' sustainability reporting does not always seem to depict an accurate image of the companies' societal and environmental impacts.

This problem could be seen to relate to why there is the debate in the academic literature about the usefulness of sustainability reporting. Moreover, it is this kind of a discrepancies between the portrayed image and the companies' actual impacts that could be argued to undermine public trust in companies and strongly link the research problem with the sustainability reporting transparency. In the extreme cases, research findings have indicated that there could even be a less visible 'backstage' of activities lurking behind the 'frontstage' of sustainability discourse, in which case the actions can even be somewhat contradictory to the communication (Cho et al., 2016). For this reason, the thesis puts forward a proposition that transparency represents a key factor in determining sustainability reporting quality and usefulness, and sets out to examine sustainability reporting transparency with the following research questions:

Research question #1:

What is the current level of transparency against selected academic criteria among the front-runners of sustainability reporting on their environmental impacts in the Finnish forest, paper, and pulp industry?

The academic literature exhibits views of sustainability reporting that range from sustainability reports being a powerful management tool to sustainability reports being PR stunts. With there even being some discussion of front and backstage trickery among companies, the question then becomes: how transparent are companies in their sustainability reporting exactly?

Based on the reviewed literature, there seem to have been relatively little efforts to measure the abstract concept of transparency (Rawlins, 2009). One alternative to gauge the current level of sustainability reporting transparency would be to examine where the front-runners in the field are, and this is the approach chosen by this study. To address the research problem, this thesis presents a case with three companies from Finland – a country often regarded as one of the most environmentally conscious and savvy nations in the world. Moreover, the thesis has identified and combined several determinants of sustainability reporting transparency from the literature into one theoretical framework and plans to use these variables as a lens to examine the transparency of some of the most praised Finnish sustainability reports in an industry that is intimately related to the environment and has an important role to play in solving both problems evident in the IPCC and IPBES reports: the forest, paper, and pulp industry.

Research question #2:

How is negative information disclosed, i.e. information regarding the negative environmental impacts from the company's operations and environmental performance that has impaired or fallen short of performance targets?

In their review of the sustainability reporting literature from 1999 to 2011, Hahn and Kuhnen (2013) found that only one article focused on companies' disclosure of negative information as a part of their reports. Consequently, as a part of their review Hahn and Kuhnen (2013) made a call for future research "to examine differences in the disclosure of negative incidents" (p.16). As being open about negative information and the

company's shortcomings in a specific area are inherently part of being transparent, assessing the negative information disclosure can be seen to naturally align with the first research question. Therefore, it is not considered to be out of the scope of this study to also attempt to respond to this call in the literature to investigate how the case companies disclose negative information in their sustainability reports.

Research question #3:

How comparable is the disclosed information between the sustainability reports of large companies of the same industry and with similar geographical operating areas that follow the same GRI reporting guidelines?

A couple of key issues affecting the high degree of variation in sustainability reports' content and quality seem to be the lack of universal definition for sustainability, different institutional environments between countries, and many different sustainability reporting guidelines and standards. For example, the European Union's directive on non-financial information disclosure that became effective in 2018 references seven different international frameworks for sustainability reporting and does not limit the use of other reporting standards or guidelines either (Directive 2014/95/EU). All of this could be argued to limit the comparability of sustainability reports to a significant extent.

Consequently, there appears to exist somewhat of a consensus in the academic literature that corporate sustainability reporting could be developed further toward convergence, or to have similar rules of the game. That is, in terms of reporting quality a certain degree of convergence or standardization in reporting practices seems highly desirable for sustainability reporting. The comparability of information disclosed in sustainability reports could also be argued to represent an element of transparency as it either enables or impedes stakeholders' evaluation of different companies' sustainability performance against each other.

If it is difficult to compare the information provided in various sustainability reports with each other, this could be argued to cause limited transparency into the non-financial performance of companies, which in turn could for instance hamper sustainable investment decisions. Moreover, based on the reviewed literature, most studies with comparative elements seem to have taken place in the international setting and have found sustainability reporting to differ both in terms of contents and quality. However, there does not seem to exist studies that would explore the comparability of multiple studies from the same industry within Finland. Therefore, this thesis has chosen to investigate as its third research question how comparable the disclosed information is in the sustainability reports of three large case companies of the same industry with similar geographical operating areas and the same reporting guideline.

Overall, this study attempts to address these research questions and shed light on the current state of sustainability reporting transparency among some of the global front-runners of sustainability reporting against the identified academic criteria. Minimally this study hopes to explore the sustainability reporting practices of three case companies in the Finnish forest, paper and pulp industry from the point of views of how transparent the information disclosure has been, and to describe how the case companies approach the disclosure of negative information, and how comparable the disclosed information is between the case companies' sustainability reports. By doing so the thesis also hopes to be able to contribute to the identified research problem. The thesis hopes to contribute to the ongoing debate in the literature regarding how voluntary sustainability reporting should be and to potentially towards the evolution of the practice with possible suggestions for practitioners on how to make sustainability reports more transparent to increase sustainability reporting quality as well as the reports' usefulness for sustainable development.

2. LITERATURE REVIEW

2.1. Sustainability reporting

The phenomenon called sustainability reporting belongs under the umbrella term called corporate reporting, which involves companies disclosing different kinds of information to various stakeholders about the companies' operations via documents that are usually published online. For a long time, corporate reporting was almost synonymous with financial reporting, but towards the turn of the century the world started to witness sustainability reporting's rise to the fore (Hahn & Kuhnen, 2013) along with the rise of corporate social responsibility (CSR). Compared to purely financial reporting, sustainability reporting assumes a slightly different approach to corporate information disclosure.

Instead of the somewhat Milton Friedman-like approach of financial reporting, where focus is placed on shareholders, sustainability reporting assumes the triple bottom line approach, where the company addresses a broader group of stakeholders and information disclosure on financial performance is coupled with, or sometimes even seemingly overrun by, social and environmental considerations. Central to the triple bottom line approach is the idea that there are three interrelated broad dimensions in which companies can create value and be responsible for their actions: economic, social, and environmental (Rasche et al., 2017), and this approach "aims at moving corporations beyond the consideration of a single bottom line (i.e. the financial one)" (Rasche et al., 2017: 490). Some companies keep sustainability reporting separated from financial reporting. However, the current trend seems to be that companies are moving toward integrated reporting (Zsóka & Vajkai, 2018), which involves companies disclosing information "related to all [their] capitals: financial, manufactured, intellectual, human, social and relationship, and natural" (Baron, 2014: 7) in one report.

"Sustainability reporting is the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development." (Bill, 2014: 23, cited by Zsóka & Vajkai, 2018)

However, the differences between financial and sustainability reporting do not stop here. For example, sustainability reporting is still mostly voluntary for almost all companies (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009), and individual governments have given companies little to non-existent guidance or direction on how sustainability reporting should be carried out in practice (Beare et al., 2013; Crawford & Williams, 2011). Only relatively few countries in the world seem to have made the act of publishing sustainability information mandatory through legislation, and this obligation mainly impinges on large corporations (Chen & Bouvain, 2009; Matisoff, 2013).

EU sets the reporting threshold on 500 employees for listed companies, banks, insurance companies, and other national public-interest entities in its directive on non-financial reporting that has started to oblige large companies since 2018 (European Commission, n.d.). However, even with this obligation there seems to be vast flexibility given to the companies to disclose information as they please and there do not seem to be any references to possible repercussions or penalties for negligence or infringement of the obligation. The Union plans to make available 'non-binding guidelines on methodology' but essentially the companies impacted by the directive can choose to follow any national or international framework in their reporting (Directive 2014/95/EU).

Consequently, there does not really seem to exist a singular universal reporting standard (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009; Fortanier et al., 2011) or definition (Zsóka & Vajkai, 2018; Roca & Searcy, 2012) for sustainability reporting. Largely due to the different institutional environments between countries there exists a large variety of sustainability reports in terms of content and quality (Hahn & Kuhnen, 2013; Chen & Bouvain, 2009; Fortanier et al., 2011). Studies have shown that some companies report

diligently on their sustainability indicators and have done so for some time, but others may provide little to no information at all (Chen & Bouvain, 2009).

All of this could be seen to seriously limit the comparability of sustainability reports between companies – especially between companies from diverse contexts. Whereas financial reporting/ accounting has two established and commonly known standards in Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS), the standard that comes closest to these two in terms of sustainability reporting is that of the Global Reporting Initiative (GRI), which is the leading sustainability reporting guideline (Hahn & Kuhnen, 2013; KPMG, 2011; Beare et al., 2013; Thijssens et al., 2016; Zsóka & Vajkai, 2018). However, even the GRI has received criticism for example for its inconsistency (Thijssens et al., 2016), disconnect to national public policies (Beare et al., 2013), and inability to "distinguish between the decoupled and integrated [types of] sustainability" that companies practice (Thijssens et al., 2016: 99).

It has been noted that even with the existence of sustainability reporting guidelines, such as the GRI, companies worldwide still hold considerable control over what they include in their sustainability reports (Beare et al., 2013), while the selected information "may benefit the firm but not necessarily the user" (Crawford & Williams, 2011: 345). Furthermore, companies can just choose not to follow the GRI standards as compliance is still mostly based on voluntary action. This issue of voluntary information disclosure is one of the hot debates identified in the literature (Hahn & Kuhnen, 2013; Criado-Jiménez et al., 2008) as research on information disclosure programs' effectiveness displays mixed results (Matisoff, 2013). Some scholars call for more government control and guidance (e.g. Clarkson et al., 2011, Hrasky, 2012), whereas others argue that voluntary reporting should be encouraged (e.g. Matisoff, 2013).

Overall, the practice of drafting sustainability reports could be said to have been met with varying degrees of enthusiasm in the academic literature and even outright opposite opinions can be seen about the usefulness of this practice. In the face of humankind's dire

environmental and societal challenges, some authors view sustainability reporting as a genuinely good practice that helps to e.g. increase transparency regarding the environmental effects of companies' operations (Cho et al., 2016). On the other hand, the critics may point out that companies use sustainability reports merely as a strategic public relations tool to gain favorable PR (Hahn & Lufls, 2013; Holder-Webb et al., 2009; Cho et al., 2016) and describe the practice as useless if it does not aim to respond to stakeholders' needs (Hopwood, 2009; O'Dwyer et al., 2005, cited by Thijssens et al., 2016).

For example Chen and Bouvain (2009) note how "there is some evidence that membership of the [United Nation's] Global Compact [initiative] provides benefits, such as improved corporate image and networking opportunities (Cetindamar and Husoy, 2007) but there have been few studies that have examined whether or not the Global Compact is actually leading to the desired effect on firm CSR behavior, such as monitoring and reporting of social impacts" (p. 300). In addition, many authors have come to question sustainability reporting's usefulness because of issues such as different reporting models/methods (Thijssens et al., 2016), selective and biased information disclosure (Cho et al., 2016), as well as lack of transparency on negative events and tendency towards greenwashing (Hahn & Lufls, 2013).

Whether sustainability reporting is seen as useful or useless could also be framed as a question of what the perceived effectiveness or ineffectiveness of the practice is in fostering environmentally friendly policies and socially beneficial actions. Thijssens et al (2016) conclude that their findings seem to suggest that "it is difficult to say anything meaningful about a company's sustainability performance on the basis of the sustainability report alone [because as previous studies have also suggested] sustainability reporting does not reflect sustainability performance but merely a wish to maintain legitimacy (e.g. Patten, 2002; Cho and Patten, 2007) and mimicking behaviour (e.g. De Villiers and Alexander, 2014; De Villiers et al., 2014)" (p.99).

2.1.1. Why do companies practice sustainability reporting?

Although the practice of sustainability reporting is largely voluntary, there are many reasons that drive companies toward adopting the practice. According to Matisoff (2013), reasons why companies "pursue an open disclosure policy [include] investor (Reid and Toffel, 2009) or employee (Spence, 2009) pressure, legal liabilities and securities laws (Skinner, 1994), increased growth rates and shareholder value (Blacconiere and Patten, 1994; Lev, 1992), improved terms of trade with suppliers and customers (Lev, 1992), reduced regulatory intervention (Lev, 1992; Walker and Salt, 2006), and reduced cost and increased access to capital (Blacconiere and Patten, 1994; Botosan, 1997)" (p. 581). Whether a company practices sustainability reporting or not is "increasingly recognized as an important factor contributing to corporate sustainability" (Lozano and Huisingh, 2011, cited by Hahn & Kuhnen, 2013: 5), and the "disclosure and the internal/external communication of sustainability information directly contribute to a company's supply of critical resources from various stakeholders" (Herzig & Schaltegger, 2006; Deegan, 2002, cited by Hahn & Kuhnen, 2013: 7).

There are many benefits to be gained from sustainability reporting for both the companies themselves and for the society at large. The practice of sustainability reporting e.g. helps companies to legitimize their activities and to benchmark these activities to those of the competitors (Herzig & Schaltegger, 2006, cited by Zsóka & Vajkai, 2018). Companies' wish to legitimize their activities to stakeholders and the general public could be argued to stem from stakeholders' expectations towards companies for responsible conduct and being responsive to contemporary social problems. In recent years stakeholders' desire for transparent information disclosure from companies on what is their approach to contemporary social issues could be seen to have grown considerably (Waddock & Googins, 2011; Crawford & Williams, 2011) in a bid to gain more accountability (Crawford & Williams, 2011), responsiveness, and transparency from companies (Waddock & Googins, 2011).

Individual members of a society could be argued to be held accountable for their actions towards the larger whole, and stakeholders could be seen to demand corporations to be

accountable for their actions as well. For different stakeholders, the reasons why and for what they wish to hold corporations accountable may vary. Nevertheless, for accountability to be possible, transparency into companies' operations could be argued to be in a key role as an enabler (Rasche et al., 2017; Rawlins, 2009).

Moreover, the process used to compile non-financial information for later dissemination as a part of sustainability reporting can prove to be an opportunity for companies to analyze their operations through a new lens, which may reveal areas of improvement in the companies' operations and enable the development of cost-effective and environmentally-friendly solutions (Matisoff, 2013; Cerin, 2002). Both Zsóka and Vajkai (2018) as well as Hahn and Kuhnen (2013) cite Herzig and Schaltegger (2006) also in that sustainability reporting can enhance transparency and accountability within the company as well as help to install and maintain employee motivation, internal information flow and controlling processes.

Enhanced environmental performance may also help companies increase brand value (Herzig & Schaltegger, 2006) to obtain an advantage from "environmental marketing, which has been demonstrated to lead to a reputational, financial, and competitive advantage for firms (Miles and Covin, 2000; Prakash, 2002)" (Matisoff, 2013: 580). However, besides being a communication instrument for dialogue with stakeholders, sustainability reports help companies to plan, measure, and manage change for enhanced environmental and societal performance (Kozlowski et al. 2015, cited by Zsóka & Vajkai, 2018).

This is also where possibly the largest the societal benefits of disclosing sustainability information lie; Matisoff (2013) notes that consumers are empowered to make more environmentally-conscious consumption decisions (Delmas et al., 2010; Shimshack et al., 2007) and market actors should be able to better evaluate and react to firms' behavior, which may result in emission reductions via e.g. investor pressure.

2.1.2. What constitutes an exemplary sustainability report?

The essence of sustainability reporting lies in addressing companies' social, environmental, and economic impact, and disseminating information on these dimensions to the companies' stakeholders (Zsóka & Vajkai, 2018). In providing this kind of an overview of the company's operations, qualitative and quantitative information should be balanced in a way that the report adequately brings forth how the company has made progress in the aforementioned three dimensions (Daub, 2007; KPMG, 2002, cited by Zsóka & Vajkai, 2018). A clear definition of the company's sustainability goals and description of the present situation as well as the steps that the company plans to take to achieve its goals are parts of this (Zsóka & Vajkai, 2018).

In addition, Thijssens et al (2016) advocate for 'internal organizational factors' to be included in sustainability reports after discovering that six Dutch companies with very different sustainability management practices appeared to have equally exemplary sustainability reports. Their results led Thijssens et al (2016) to conclude that "the internal management processes regarding sustainability reporting may be more informative about the [company's] actual sustainability than the content of the report" (p.100). Citing the GRI guidelines, Zsóka and Vajkai (2018) follow a similar line of thought by stating that "[companies] should gather, record, compile, analyse and disclose information and processes used in the preparation of a report in a way that they can be subject to examination and that establishes the quality and materiality of the information" (p.37).

Although, a trait of exemplary sustainability reports is also that stakeholders find the disclosed information easy to access and comprehend (Matisoff, 2013). According to Zsóka and Vajkai (2018), "the quality of [sustainability] reporting can be assessed through balance, comparability, accuracy, timeliness, clarity and reliability of the provided information" (p.20). Furthermore, exemplary sustainability reports have usually gone through an external audit (Thijssens et al., 2016).

In terms of content, sustainability reports should identify the company's stakeholders (both internal and external) and describe how their expectations have been met (Zsóka &

Vajkai, 2018; Adams, 2002). The contents of a sustainability report should also relate the company's sustainability performance to the wider sustainability context within which the company operates as well as address the material aspects of the company's operations (Zsóka & Vajkai, 2018).

More specifically, the term 'material aspects' refers to covering the important and significant social, environmental, and economic impacts of companies' activities and avoiding trivial information in the report (Baron, 2014). Information can be material, and material information is the kind of information that influences stakeholder actions the most and is most interesting to the stakeholders (Baron, 2014; Zsóka & Vajkai, 2018). Therefore, sustainability reports should not omit any information or make inaccurate statements about information that is material, i.e. important for stakeholder evaluations and decision-making.

Consequently, completeness of the provided information is also an important consideration as sustainability reports "should include coverage of material aspects and their boundaries, sufficient to reflect significant economic, environmental and social impacts, and to enable stakeholders to assess the organization's performance in the reporting period" (GRI, cited by Zsóka & Vajkai, 2018: 34). Antonini and Larrinaga (2017) posit that "the boundaries of significant sustainability indicators should encompass all entities over which there is sustainability control, together with indirect impacts arising from activities across the supply chain, and not merely direct impacts caused by entities within boundaries based on financial control" (p.123). In Antonini and Larrinaga's (2017) study, the authors note how Matthews et al (2008) found that in 2/3 of economic sectors more than 75% of an organization's environmental impact in terms of carbon footprint is likely to come indirectly from third parties', such as suppliers', activities related to the reporting organization's operations.

The argument for going beyond the boundaries of financial control for sustainability indicators lies in the desire to take away the possibility from companies to appear more environmentally-friendly than what their operations are by pushing their emissions up or

down to other actors in the supply/ value chain. After all, where the line is drawn on reporting boundaries can depict very different images on the true extent of the impact that a company's daily operations have on the climate.

Nevertheless, whether the question is about the boundaries, balance, internal organizational factors, ease of access, easily comprehendible information, comparability, accuracy, completeness, timeliness, clarity, reliability, materiality, or third-party assurance of the provided information, what all of these could be seen to have in common is that the provided information needs to be transparent. Transparency can be seen as the prerequisite, consequence, or otherwise closely related factor to all these aspects of exemplary sustainability reporting. As Rasche et al. (2017) note, transparency points to insight and clarity, which could be argued to describe the core qualities that stakeholders desire from sustainability reporting; insight and clarity to companies environmental and social impacts as well as performance.

Furthermore, for example *the GHG Protocol* posits the following on transparency:

"T*ransparency relates to the degree to which information on the processes, procedures, assumptions, and limitations of the GHG inventory are disclosed in a clear, factual, neutral, and understandable manner based on clear documentation and archives (i.e., an audit trail). Information needs to be recorded, compiled, and analyzed in a way that enables internal reviewers and external verifiers to attest to its credibility. Specific exclusions or inclusions need to be clearly identified and justified, assumptions disclosed, and appropriate references provided for the methodologies applied and the data sources used. The information should be sufficient to enable a third party to derive the same results if provided with the same source data. A "transparent" report will provide a clear understanding of the issues in the context of the reporting company and a meaningful assessment of performance"* (WBCSD & WRI, 2004: 9).

Transparent sustainability reporting could be seen to show integrity, respect for others, and openness (Rawlins, 2009). It encapsulates the idea that 'nothing is hidden from view' (Rasche et al., 2017) and by making companies behavior more observable efficiently 'eliminates problems of moral hazard' (Rawlins, 2009). Transparency can be seen to enhance "the ethical nature of organizations in two ways: first, it holds organizations accountable for their actions and policies; and second, it respects the autonomy and reasoning ability of individuals who deserve to have access to information that might affect their position in life" (Rawlins, 2009: 77). Based on this, transparency could overall be described as a key, if not the most important determinant of sustainability reporting quality.

2.1.3. What goes into producing an exemplary report?

Relating to the concept of 'internal organizational factors', the reviewed literature indicates that internal factors that seem to affect sustainability reporting include e.g. the degree of formality of the reporting process in the company (Adams, 2002; Thijssens et al., 2016) and the departments involved (Adams, 2002). Moreover, Mishra and Schmidt (2018) identify leaders' attitudes and cultural influences as the two most significant barriers to corporate social responsibility initiatives in multinational corporations. In other words, it seems that like many other initiatives, companies need to have the commitment of top management to produce exemplary reports (Massa et al., 2015; Bebbington et al., 2009).

This view is supported by Thijssens et al. (2016), who imply that "also the views and attitudes of the ones involved in reporting towards past and future reporting, reporting bad news, costs and benefits of reporting and regulation and verification appear to have an influence" (p.88). In addition, governance processes in combination with institutional pressures seem to put together a force that either accommodates for or acts to thwart sustainability reporting (Bebbington et al., 2009). There is also a relationship between sustainability performance and managers' and employees' commitment and values (Thijssens et al., 2016). What in turn seems to affect managerial commitment to

sustainability is managerial skills that the managers have gained from formal education and management training (Quazi, 2003, cited by Thijssens et al., 2016).

Finally, factors such as "employee awareness, knowledge, skills and expertise of employees, integration of environmental issues in strategic planning, the use of management accounting practices […] and cross-functional coordination and communication" (Albelda-Perez et al., 2007, cited by Thijssens et al. 2016: 88) along with both organizational structure and processes have been found to influence environmental performance to a great extent (Delmas & Toffel, 2004; Albelda-Perez et al., 2007, cited by Thijssens et al. 2016). Waddock & Googins (2011) also posit that companies need to create a coherent and integrated communication strategy across various communication domains due to the growth that can be seen to have taken place in recent years in "the need for transparent, trustworthy, and accurate communications about corporate responsibility" (p.40).

2.1.4. What are some of the challenges with sustainability reporting?

Stakeholders expect companies to be honest and transparent about their business dealings (Waddock & Googins, 2011). When discussing transparency, what this concept could be seen to mainly deal with is being honest and open to other parties about what is happening (Rawlins, 2009). However, this is also perhaps the biggest challenge that there could be seen to be for sustainability reporting.

First of all, there could be seen to be little efforts to measure the abstract concept of transparency (Rawlins, 2009). Moreover, regarding the notion of transparency that we would be able to 'see through' all of companies' activities, Rasche et al. (2017) note how "this ideal may be somewhat illusory because […] communicative processes about transparency can be strategically designed to obscure important activities in the interest of, for example, power or profit (Christensen, Morsing and Cheney, 2008), and as such, lead to production of new areas of opacity and greenwashing" (p.490). Moreover, one challenge with regards to sustainability reporting transparency is that the practice may

represent only a 'temporary fix' for companies, where companies only symbolically engage in the practice "to regain lost legitimacy as a form of social justification for a company's actions" (Crawford & Williams, 2011: 341), while much may not change in terms of the operations. Companies' sustainability reports have been found to be "often highly self-serving" (ibid) as well as "of limited use, as they lack a standardized format" (ibid).

A related challenge to the latter remark could also be the amount of information in the reports; what amount could be seen to be enough? In sustainability reports there is a need to discuss all material aspects of an organization's operations while there may be various, even conflicting views on what constitutes material information. At the same time, the report should retain a certain degree of coherence and not drown the reader in insurmountable quantities of information. Providing too much information could essentially be seen to even hinder transparency to a certain degree, if a sustainability report is difficult to make sense of because of it.

How to present a given set of information poses another challenge. The *Greenhouse Gas Protocol* for instance states regarding greenhouse gas reporting that the presented information needs to be accurate, relevant, complete, consistent, and transparent (WBSCD & WRI, 2004). Using specific terminology may be highly effective in a given context but not in all contexts, when questions may arise with regards to for whom the report is created and who are the intended key audiences.

There may also be practical issues such as lack of resources or force majeure events that prevent a company from practicing a desired degree of sustainability reporting quality. Another consideration is that sustainability reports depict a point in time or a period of time – from the past; meaning that the report does not necessarily capture current performance, which could be seen to limit transparency (Crawford & Williams, 2011). Delivering the level of transparency desired by stakeholders may also pose a challenge in the sense that some information may be classified as confidential as per contractual

agreements, as trade secrets or as otherwise critical information for the business and its ability to compete in the market.

Waddock & Googins (2011) note how interesting paradoxes may surround CSR communication in that e.g. the sustainability reporting that companies practice may actually raise skepticism towards the company rather than fulfill the intended aim of disclosure on contributions to the environment and society. Partly this could be because trust in companies is very low in the modern era (Waddock & Googins, 2011; Rawlins, 2009). To avoid some of the negative effect, Waddock & Googins (2011) recommend companies to walk the walk and talk the talk, as perceived discrepancies between words and actions or inauthenticity are not likely to help the company, but to be interpreted as hypocrisy, which then again negatively affects stakeholders' trust and attitudes towards the company in addition to damaging the company's credibility in the eyes of the stakeholders.

After all, concepts that seem closely related to transparency are trust, credibility, and being ethical (Rawlins, 2009). What makes them significant is that trust, credibility, and ethical behavior could be seen to act as fundamental prerequisites for functioning relationships between companies and their stakeholders, which also seems to be beneficial for the financial performance of companies (Rawlins, 2009). It is unlikely that consumers would e.g. buy products that could most likely result in undesired health problems for themselves or their loved ones.

Similarly, it would be in governments' interests to control the sale of such products that cause harm to its civilians. However, since it simply is not possible for consumers or governments to directly control or even evaluate all aspects of all products companies sell due to a lack of resources, knowledge, access, etc., a certain degree of trust has to be placed on the company to conduct its business appropriately. In the end, some of the challenges with sustainability reporting could precisely be seen to culminate in the dynamic between transparency and trust.

2.2. Debate on Mandatory vs. Voluntary reporting; the road to transparency

The mandatory vs. voluntary debate could be seen to be very much at the heart of the issue of transparency in sustainability reporting. Can the public trust companies to disclose all material information voluntarily? In recent years trust in companies has been described to have reached 'an all-time low' (e.g. Waddock & Googins, 2011; Rawlins, 2009) and there has been "growth in the need for transparent, trustworthy, and accurate communications about corporate responsibility" (Waddock & Googins, 2011: 40) as stakeholders have demanded "for more comprehensive mandatory disclosure on the part of corporations" (Crawford & Williams, 2011: 339) in a bid to gain more standardized information and accountability (Crawford & Williams, 2011) as well as responsiveness and transparency from companies (Waddock & Googins, 2011).

From a transparency point-of-view, the problem that voluntary reporting could be seen to pose is that companies can cherry-pick the issues they wish to include in their reports (Chen & Bouvain, 2009). As Hahn & Lufls (2013) point out, transparency is important because it can increase trust between a company and its stakeholders, whereas lack of transparency increases risk for stakeholders. With voluntary information disclosure, the content of sustainability reports can be seen to be entirely at the companies' discretion (Beare et al., 2013).

In Canada, the study of Beare et al (2013) found indications that companies' do not really give much consideration to public policy in sustainability reporting, even when government required companies to disclose sustainability information. In Australia, public sector organizations' willingness to publish environmental reports was found to be dependent on the organization's success in terms of organizational performance and the presence of individual rewards (Lodhia & Jacobs, 2013, cited by Thijssens et al., 2016). Proponents of more mandatory reporting also note how with voluntary reporting there are no sanctions for non-compliance (Crawford & Williams, 2011).

On the other hand, Matisoff's (2013) research from the USA illustrates that voluntary information disclosure programs driven by investor pressure can beat mandatory government-driven information disclosure programs in terms of effectiveness. Matisoff (2013) posits that there may be tradeoffs between voluntary and mandatory sustainability information disclosure programs. For example, Matisoff (2013) speculates that NGO-supervised voluntary disclosures may possibly have bigger "incentive to ensure that information collected and disseminated is available in an easy to use format" (p.581), whereas in government-led disclosures data may be difficult to access and comprehend e.g. because of data's overly general nature and missing contextual factors (Matisoff, 2013). As Crawford and Williams (2011) also note, with mandatory reporting only the quantity, not the quality, of information may increase. Moreover, Matisoff (2013) suggests that government-led disclosure programs may not be adaptable and flexible enough because reaching decisions is likely to take time due to bureaucracy and heavy processes. Instead, NGOs and third parties might be able to benefit from more agile ways of working and be better able to respond to stakeholders' demands (Matisoff, 2013).

In any case, "research has demonstrated the potential for information disclosure to be most effective when made accessible to third parties, including states and NGOs for processing and dissemination" (Bae et al., 2010, cited by Matisoff, 2013: 581). According to Matisoff (2013), there is also mounting evidence to suggest that the way in which information is disclosed to stakeholders dictates largely how effective an information disclosure program is. Perhaps not so surprisingly, user-friendly but detailed and accurate information is the kind of information that is the most likely to lead to desired outcomes (Matisoff, 2013).

2.2.1. Need for balanced reports

Balance is regarded as a central theme of sustainability reporting quality and something that is closely related to transparency as well as something that the leading reporting guideline (GRI) expects from companies (Zsóka & Vajkai, 2018; Hahn & Kuhnen, 2013).

Sustainability reports should include information on the negative impacts of a company's operations and a plan on how to reduce/eliminate the negative impact in the future (Zsóka & Vajkai, 2018). Yet, Zsóka and Vajkai (2018) point out that in the sustainability reporting literature only a few researchers examine the balance of the information provided in sustainability reports. Hahn and Lufls (2013) point out that the few studies that have been conducted show that sustainability reports usually contain an abundance of positive information while lacking information on negative events.

In their review of the sustainability reporting literature from 1999 to 2011, Hahn and Kuhnen (2013) found that only one article focused in on companies' disclosure of negative information as a part of their reports. Consequently, as a part of their review Hahn and Kuhnen (2013) made a call for future research to "apply content analysis on sustainability reports in order to examine differences in the disclosure of negative incidents" (p.16). In an attempt to respond to this call in the literature to look into how companies disclose negative events in their sustainability reports, this master's thesis aims to present a case from the Finnish forest, paper, and pulp industry.

2.2.2. Making matters easy

Part of making the disclosed information easy to understand for stakeholders is to use metrics and language that makes the sustainability performance of the company comparable to other companies. Moreover, to provide stakeholders with "a complete view, it is not enough to just disclose the improvements in percentages (relative indicators) but indicating the total amounts of environmental/ social/economic impacts are also necessary" (Zsóka & Vajkai, 2018: 36). Clarity and comparability are therefore strongly related to transparency as they make seeing the bigger picture easier (Zsóka & Vajkai, 2018).

The reason behind clarity and comparability's importance is in part that companies seem to be much more inclined to provide insufficient explanation when they come short of achieving some of their sustainability goals (Zsóka & Vajkai, 2018). Thijssens et al

(2016) also point out how companies do not tend to disclose in their report how the report was created. This obscurity can unfortunately grant growing ground to unwanted behaviors and enable ostensible compliance.

For example, one part of adhering to the GRI guidelines is a multi-stakeholder approach, which entails that companies should engage in dialogue with their stakeholders to gain input for the eventual sustainability reports (GRI, n.d.; Zsóka & Vajkai, 2018). However, when companies say that they have engaged with their stakeholders, the question becomes who exactly they engaged with and how (Zsóka & Vajkai, 2018). Were all important stakeholder groups included in this process, and if so, who was the representative of the group and what was their level of expertise? If stakeholders were surveyed, was the survey instrument free of bias? When the report lacks transparency on such matters, there will always linger a shadow on the report's reliability (Zsóka & Vajkai, 2018).

Even though measuring aspects of non-financial performance can be difficult and pitting the amount of information provided against the user-friendliness of the information is likely to remain a constant struggle, it would increase the transparency and comprehensibility of sustainability reports if companies were to clearly show which stakeholders they have received input from or how they measure given indicators (Zsóka & Vajkai, 2018). Already one indicator describing how much the company invested into managing material social and environmental measures would help the public to understand how seriously the company takes these aspects (Zsóka & Vajkai, 2018). Another way to considerably increase transparency and clarity of sustainability reports would be to simply include links into the report related to the discussed topics for more information (Zsóka & Vajkai, 2018).

Nevertheless, the transparency and comparability of companies' environmental impact information can be seen as one key variable to help the management of greenhouse gas emissions, since accurate and quality emission data from companies can e.g. help nations in their preparations of climate change policies (Matisoff, 2013).

2.3. Theoretical framework

Based on the reviewed literature, this thesis finds the following six factors to contribute to the transparency of sustainability reports (the outcome variable):

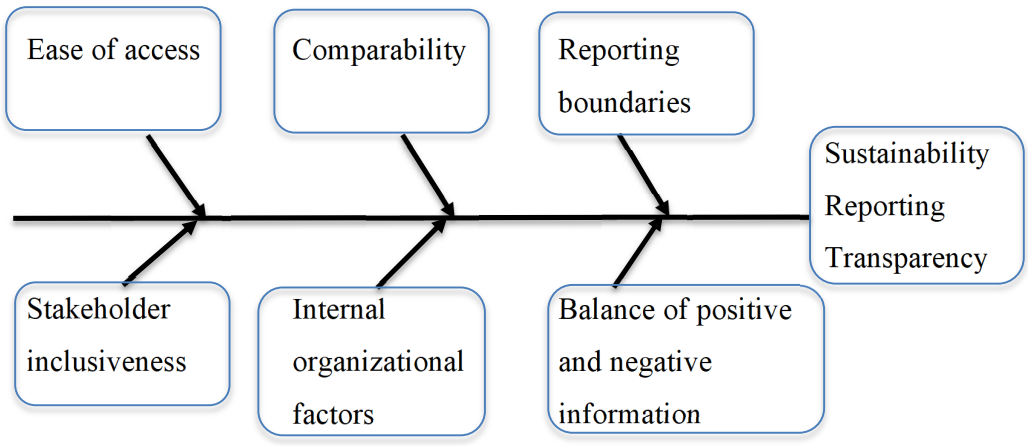


Figure 1: Theoretical framework

A theoretical proposition put forward by the thesis is that sustainability reporting transparency serves as an important determinant of sustainability reporting quality. The identified research problem with sustainability reporting is that in its current form sustainability reporting does not always seem to depict an accurate image of the reporting company's sustainability performance – especially in terms of the environmental impacts. As a key determinant of sustainability reporting quality, transparency could be seen as an important factor also for determining the usefulness of sustainability reporting in driving sustainable development via enhancing corporate accountability. In other words, the usefulness of sustainability reporting in helping to solve some of the big questions of our time could be seen as a derivative of sustainability reporting quality, which in turn could

be argued to be greatly influenced by the transparency of the practiced reporting. This makes sustainability reporting transparency a worthy topic of investigation.

With a theory-driven approach, this thesis explores what is the prevalent level of sustainability reporting transparency via a case from the Finnish forest, paper, and pulp industry. The thesis plans to use the theoretical framework presented in Figure 1 to gauge the degree of sustainability reporting transparency among the front-runners of sustainability reporting in Finland as well as to describe how comparable the examined sustainability reports are with each other and how the chosen case companies have approached the disclosure of negative information as a part of their sustainability reporting. Could sustainability reporting be seen to have reached full transparency or are there still areas with room left for improvement?

The six factors presented in the theoretical framework represent lenses through which the chosen case companies' sustainability reports will be analyzed. For example, the 'reporting boundaries' lens scans the collected research data to answer questions such as what the case companies' reporting scopes are and how well the chosen boundaries depict the entirety of the companies' operations to explore the reports' transparency. Here the thesis agrees with Antonini and Larrinaga's (2017) proposition that "the boundaries of significant sustainability indicators should encompass all entities over which there is sustainability control, together with indirect impacts arising from activities across the supply chain" (p.123).

Another consideration regarding this research variable on reporting boundaries is how consistently the selected boundaries have been applied in the practiced reporting. Based on these factors, inferences can be drawn on how transparently the chosen reporting boundaries have been communicated and how transparent the chosen boundaries have been for the companies' sustainability reporting on their environmental impacts. Any observed inconsistencies could be seen to limit transparency and even raise suspicions as to why parts of the operations have been excluded if no justification for the omission has been provided. Furthermore, if the reporting boundary is found to be considerably limited

in relation to full scope and scale of the company's operations, the thesis would consider this to contribute to a lack of transparency especially if no justification for the omission of certain parts of the operations is provided.

The variable 'balance between positive and negative information' focuses on how balanced the disclosed information in the sustainability reporting is. This research variable also is especially helpful to answer the second research question on how the case companies approach disclosing negative information, because determining the information balance involves an examination of the negative pieces of information in relation to environmental impacts and sustainability performance in the sustainability reports. The more unbalanced, or even biased, the disclosed information is perceived to be in the reports, the more the thesis would consider the reports to lack transparency.

On the other hand, the research variable of 'comparability' deals with how information is presented in the sustainability reports and whether the provided information is easily comparable between the sustainability reports. The 'comparability' research variable on the theoretical framework could be seen to address the third research question most directly. This involves examining the sustainability reports for whether they use the same variables, measurement units, charts, and tables so that drawing comparisons between the companies' non-financial performance is simple.

The thesis uses financial reporting and how financial information is presented in tables as the standard for what is the sought-after ease and simplicity for drawing comparisons between the case companies' non-financial performance. In a sense, the examination of this research variable would not be possible with only a single sustainability report but rather necessitates pitting multiple sustainability reports against each other to address a type of cross-unit transparency within the industry. Should the ways in which the information is presented in the sustainability reports to vary to a considerable extent, the thesis would consider this to hinder the level of transparency of the practiced reporting. In other words, should the drawing of comparisons between the case companies'

sustainability reports be found difficult, or at least less straight-forward than that of the financial information, a certain lack of transparency could be argued to exist.

'Internal organizational factors' described in the theoretical framework refer to companies' operating models and processes on corporate responsibility and sustainable development. The thesis examines the sustainability reports for whether they describe this kind of internal factors, and to what extent. This is done to evaluate how ingrained or embedded sustainability efforts seem to be at the case companies.

The reason for this being that a company's sustainability efforts may not be considered authentic if there are no related processes in place and the report is e.g. fully commissioned from a third-party provider. In such circumstances the provided account in the sustainability report may not represent the true situation at the company regarding sustainability, which makes the account in the report all but truthful and transparent. If the sustainability report does not describe the company's internal organizational factors related to its sustainability efforts, the thesis would consider there to be a lack of transparency with regards to the practiced reporting.

The internal organizational factors on which this thesis has opted to focus on and to particularly look for in its examination are: a) whether the sustainability report provides a description of the case company's sustainability management model – including tools and processes used to guide the company towards more sustainable operations, b) whether the sustainability report describes the case company's processes for sustainability reporting itself; how the reporting is organized, how reports are created, etc., and c) whether the case company's remuneration system has sustainability criteria. Including sustainability criteria in company-wide or key personnel's remuneration is one method to drive sustainable development forward by also incentivizing non-financial performance. Albeit this perhaps is a slightly advanced method still, such approach could nevertheless be seen as concrete evidence on the embeddedness of sustainability work in a company's operations.

The theoretical framework's 'ease of access' relates to how the case companies' sustainability reports have been made available and how easy it is to gain access to them. Should it be difficult to access the reports, this could be seen to limit transparency of the company's sustainability efforts. Finally, the theoretical framework's research variable on 'stakeholder inclusiveness' examines whether the case companies describe who their stakeholders are in their sustainability reports, and to what extent.

Here, for the evaluation the thesis has chosen to emulate the standard described by Zsóka and Vajkai (2018), which posits that companies could more specifically identify which stakeholders they have engaged and how, because there may be various actors and viewpoints even within a stakeholder group. The thesis views the materiality process deployed at the case companies as one key element for stakeholder inclusiveness in addition to description of identified stakeholders and how engagement has taken place. However, the materiality process could also be seen as an internal organizational factor related to the case company's sustainability management model.

By first examining the case companies' sustainability reports individually through each of these six proposed determinants of sustainability reporting transparency in the theoretical framework and then putting all the individual findings together, the thesis hopes to find answers to its research questions as well as to contribute to the literature regarding the research problem.

3. METHODOLOGY

3.1. Qualitative tradition

This study could be described as descriptive, exploratory, and qualitative in terms of its nature, research design, and research methods. To answer the proposed research question, this study involves primarily the analysis of publicly available sustainability reports, which are corporate documents published online in textual format. The general qualitative tradition that this research will follow is the embedded single-case study.

According to Yin (2018), case study research could be the most suitable research method when "(1) your main research questions are "how" or "why" questions, (2) you have little or no control over behavioral events, and (3) your focus of study is a contemporary (as opposed to entirely historical) phenomenon—a "case."" (p.33). Seeing that this thesis is focusing on a contemporary phenomenon, behavioral events of which it has no control over, and seeing that the main research questions involve "how" questions, the use of the case study method seems justified. The case study method also seemed appropriate for seeking answers to the research questions because case studies utilize empirical evidence from the real-world settings to contribute to the academic literature (Eriksson & Kovalainen, 2008, Yin, 2018).

Case studies are also flexible in that this method takes advantage of multiple data sources and allows for various philosophical underpinnings (Eriksson & Kovalainen, 2008; Yin, 2018). This study leans towards the research philosophy of realism. Furthermore, the case study method supports both descriptive (Yin, 2018; Dudovskiy, n.d.) and exploratory research (Yin, 2018; Eriksson & Kovalainen, 2008).

The exploratory nature of this study is apparent from the first research question as this study sets out to discover what is the current level of transparency against selected academic criteria among the front-runners of sustainability reporting on their environmental impacts in the Finnish context, on which previous research seems limited.

The purpose of this exploration is to see what can be learned from the front-runners in the field and to describe the prevalent level of transparency via selected criteria in a bid to address the research problem and to possibly identify factors that might inhibit or enable sustainability reporting from reaching its potential as an effective tool to foster sustainable development. However, as an exploratory and descriptive study, the purpose of the thesis is not to define a precise level of transparency for each examined sustainability report e.g. in numerical format.

Rather, the thesis views transparency as a continuum and considers the examined sustainability reports' transparency against the theoretical framework's research variables and their standards described in section 2.3. of the thesis. Therefore, the explorative nature of the study does not require the findings to be strictly conclusive (Dudovskiy, 2019). Furthermore, albeit the opportunity to conduct research on sustainability reporting has existed for some years now, there still does not seem to exist many studies on sustainability reporting from the context of Finland. More specifically, this thesis aims to explore how transparently Finnish organizations report on their environmental impact in practice, and thus also address this research gap identified in the literature.

On the other hand, the study's descriptive nature aims to identify and describe real-world sustainability reporting practices related to transparency. The thesis is interested in how companies disclose information on their negative environmental performance and how comparable sustainability reports are within an industry, where companies share many similar characteristics and a similar background. By describing these factors, the study hopes to shed light on sustainability reporting transparency through some key determinants of transparency in sustainability reporting.

Using a single-case study method may not be as strong as multiple-case study method in yielding insights into the studied phenomenon, and many researchers have put forward the notion that "when you have the resources, you should prefer multiple case studies over single-case studies" (Eriksson & Kovalainen, 2008: 118; Yin, 2018). However, there unfortunately are not enough of the necessary resources, such as time, for this thesis to

pursue the multiple-case study method. Moreover, with careful selection of the case even single-case studies can provide invaluable understanding of the phenomenon (Yin, 2018).

This is especially true if the selected case is *critical* to the study's theoretical propositions, if the case is *extreme* or *unusual* and deviates from the established norms and everyday occurrences, if the case is *common* and captures well the essence of an everyday situation, if the case is *revelatory* and there is an opportunity to research something that has previously been impossible to research, or if the case is *longitudinal*, which means that the case were to be studied in multiple points of time (Yin, 2018). Albeit, there may also be other rationales for conducting single-case studies (Yin, 2018). The phenomenon of interest for this study could be described as "transparency in sustainability reporting of environmental impacts", and the thesis considers the chosen case as an illustrative medium for studying this phenomenon.

Moreover, this study's case could in many ways be considered to exhibit characteristics of an extreme case from sustainability reporting, climate action and biodiversity point of views. For example, the industry of the case has a quite unique role to play in the massive climate and biodiversity dilemmas introduced at the start of the thesis. The chosen units of analysis, or case companies, represent award-winning front-runners of sustainability reporting both nationally and internationally with central operations in unusual circumstances in a context that could be described as one of the most environmentally conscious and ambitious countries in the world at the time of writing of this thesis.

How the thesis could be seen to derive most of its value is through attempting to describe sustainability reporting transparency in these unusual circumstances to illustrate the broader current state of sustainability reporting transparency. However, the case could also be seen to possess a slight critical characteristic with regards to the study's theoretical proposition on transparency's role as a key determinant of sustainability reporting quality.

Furthermore, adapting the embedded case study method for the thesis out of the two main types of single-case study methods allows the research to add depth to the case at hand.

This is because an embedded case study that utilizes multiple units of analysis could be deemed to provide opportunities for more extensive analysis than a holistic case study, which focuses only on one unit of analysis (Yin, 2018). Thus, with the embedded case study method this study may be able to draw better insights and potentially stronger conclusions on the case at hand than with a single unit of analysis. The use of multiple units of analysis enables this study to draw inferences from multiple data sets as well as to look for overarching patterns within the case and across the units of analysis. This way the study can more aptly explore and describe the level of transparency of the sustainability reporting in the research context.

3.2. Context

As for the context, this study situates in the not-so-distant aftermath of the IPCC's *Special Report on Global Warming of 1.5 °C* and IPBES's *Global Assessment Report on Biodiversity and Ecosystem Services* in the tumultuous, relatively early period of worldwide anti-global warming initiatives, when all nations are forced to consider their environmental choices in earnest. At the time of writing, Finland is regarded as one of the most environmentally conscious and -savvy nations in the world with a target to become carbon neutral by 2035. Furthermore, Finland has e.g. recently been crowned as the winner of the Good Country Index in 2018, i.e. the ruling country in terms of making the most positive overall contribution "to the greater good of humanity" (Good Country Index, 2018).

More specifically, this study's context could be described to be situated within the Finnish forest, paper, and pulp industry. The reason for choosing this industry as the research context could be said to be influenced by the recent alarming reports from IPCC (2018) and IPBES (2019) on the state planet Earth is in. Given the choice of the thesis to focus on how transparent companies are about their environmental impacts in sustainability reporting, the forest, paper and pulp industry presents an interesting research context for

the thesis from the point of view of the close ties that the industry has with nature, global warming and biodiversity.

Moreover, the forest industry has represented one of the three largest manufacturing industries in Finland for a long time (see e.g. Official Statistics of Finland, 2018) and for instance in the year of 2017 the Finnish forest industries represented a gross value of 22.3 billion euros with much of the Finnish production being exported abroad (Suorsa, 2019). However, similarly to the newspaper industry, the forest and paper industry could be argued to be undergoing changes in the face of ongoing digitalization and diminishing paper consumption as well as in the face of ongoing global warming and a quest for new business opportunities from forests as renewable resources.

Questions regarding what a sustainable annual logging amount in Finland could be surfaced as one of the discussion topics during the campaigning period leading up to the Finnish parliamentary elections in the spring of 2019. The Finnish forest, paper and pulp industry's position seemed to be that the amount of logging should be increased and that it could already be done sustainably.

3.3. The chosen units of analysis

The thesis has chosen to address the research problem and questions from the point of view of sustainability reporting's front-runners. This means examining companies that have been deemed as the leading actors on the field of sustainability reporting in Finland based on awards and recognition given to the companies via third party evaluations and feedback. In Finland one industry with more than one of this kind of merited companies seems to be the forest, paper and pulp industry, which is why this study has opted to examine the sustainability reporting of the most prominent actors of this industry at the time of writing.

The choice was further influenced by the fact that all these actors seem to have relatively long traditions in practicing sustainability reporting and the industry is closely connected to the environment. Due to their size, these companies could also be argued to have a considerable environmental impact. Moreover, as large companies the case companies could be argued to be best equipped in the industry for the practice of sustainability reporting in terms of their resources.

Consequently, the data corpus for this research consists of the sustainability reports of the three largest companies in the Finnish forest, paper, and pulp industry: Stora Enso, Metsä Group and UPM. These three companies were chosen as the sublevel units of analysis for this embedded case study because examining these three case companies seemed the most appropriate overall option considering this study's research problem and the research questions. All observed case companies in Stora Enso, UPM, and Metsä Group also represent large corporations with considerable international operations.

These three companies are the three biggest forest industry companies in Finland (Suorsa, 2018) and all have made it into the top 50 performers globally in terms of sales (PwC, 2016) – with UPM and Stora Enso even occupying the 5th and 6th spot respectively in the rankings (Finnish Forest Industries Federation, 2018). In terms of awards and recognition, all three case companies seem to have in some way exceeded either in sustainability reporting or performance or both, albeit to somewhat varying degrees. Stora Enso's sustainability report for 2018 was in the global top ten (WBCSD, 2019) and branded as the best overall in Finland (FIBS, 2019).

Some of the other awards Stora Enso has claimed in recent years include another top ten ranking globally for the 2017 report (Stora Enso, 2018c), being voted as the best report by Finnish financial journalists for the 2017 report (FIBS, 2018; Stora Enso, 2018b), and having the best overall report in 2015 as well as being media's and students' favorite (FIBS, 2016). All case companies including Stora Enso seem to have done relatively well in CDP's evaluations on climate, forests, and water use in recent years. UPM, for instance,

seems to have been rated among the best in CDP's rankings for over a decade now (UPM, 2016; UPM, 2020a).

Moreover, UPM seem to recently have won awards such as being one of United Nations Global Compact LEAD participants, who the UN considers having demonstrated world-class commitment to corporate responsibility (UPM, 2019b) and placed as the 24th most sustainable corporation in the world in Corporate Knights' *The Global 100 Index* of companies with revenues over 1 billion USD (UPM, 2020b). In FIBS' annual sustainability reporting competition UPM received an honorary mention for its wielding of the SDGs in its annual report for the year of 2017 (FIBS, 2018). In addition, UPM' report for 2015 won e.g. the biodiversity series in FIBS' sustainability reporting competition (FIBS, 2016).

Albeit Metsä Group does not seem to be quite as heavily awarded for its sustainability reporting, the company seems to have received some recognition over the years for instance for its transparency and high-level performance in WWF's international Environmental Paper Company Index (Metsä Group, n.d.) as well as in the form of honorary mentions like '*The Biggest Improvement of the Year*' in 2012 (M&M, 2012). In terms of performance, however, Metsä Group seems to have consolidated its position as a regular name on the CDP A lists in recent years (Metsä Group, 2020). Metsä Group as well as its subsidiaries seem to also have won awards such as an *Outstanding Achievement for Sustainability* trophy and a *Recognised for Excellence 6 Stars* evaluation from EFQM (Metsä Group, 2019) and Ecovadis Gold and Platinum ratings in recent years (Metsä Board, 2019; Metsä Tissue, 2020).

Based on all the publicly available materials published by the case companies, all of them could at least be described as highly aware of sustainability as a general topic.

3.4. Data collection

In order to address the research problem of companies' sustainability reports not necessarily always depicting an accurate image of the companies' sustainability performance, and the following research questions, what becomes relevant empirical material for the thesis are companies' sustainability reports. This is because sustainability reports could be seen to represent the core of a company's sustainability reporting considering the notable amount of time and effort it takes to compile these reports and how they are used to communicate to stakeholders a comprehensive account of the reporting year's performance. Furthermore, since the study has chosen to approach the research problem via an extreme case on the front-runners of sustainability reporting from the forest, paper, and pulp industry and in the understudied Finnish context, the study naturally examines the sustainability reporting of the most prominent actors of this industry and context at the time of writing.

Hence, the primary research data for this thesis consists of the sustainability reports of the three largest companies in the Finnish forest, paper, and pulp industry who practice sustainability reporting: Stora Enso, Metsä Group, and UPM. All three sustainability reports were available on the case companies' public websites, from which it was possible to download on electronic copy of the report in PDF-format. Collecting the data could be described as relatively quick and easy, and as the materials come directly from the case companies, these reports should be authentic and reliable representations of the case companies' accounts on their sustainability performance from their own point of view. Consequently, these written sustainability reports should provide this thesis with sufficient and adequate research material to address the research questions regarding sustainability reporting transparency.

All the examined materials regarding the three companies' sustainability reports are from the reporting year of 2018. The reason for this is that these were the latest sustainability reports that the case companies had published when the work on the thesis started. Table 1 below compiles what kind of documents the companies produced to report on their performance in 2018.

	Document	Number of pages
Metsä Group	Annual report	125
	Sustainability report	77
	Financial statement	111
	Corporate governance statement	8
	Salary and remuneration report	4
		325 pages
UPM-Kymmene	Annual report	101
	Corporate governance statement	12
	Remuneration statement	5
	Material balance infographic	1
	Carbon inventory report	5
	UPM GRI content index	10
		134 pages
Stora Enso	Annual report	235
	Strategy report	47
	Sustainability report	74
	Financial report	93
	Governance report	22
		471 pages

Table 1: Case companies' annual reporting documents in 2018

Out of these documents outlined above, the materials that this study primarily focused on analyzing consists of Metsä Group's sustainability report, UPM's annual report, carbon inventory report, and the GRI content index, and Stora Enso's sustainability report – with other documents viewed to the extent that was deemed as appropriate. Overall, the page count for each set of reports indicates that Stora Enso is to be the most voluble of the three units of analysis in its reporting and UPM quite clearly the most taciturn.

Furthermore, it is worth mentioning that written documents have often been overlooked as a data source in qualitative research (Coffey, 2014). Nevertheless, as Coffey (2014) notes, various forms of documents routinely permeate all aspects of our lives both at home and work, and "documentary analysis may also be employed as the main method for qualitative research in its own right" (p.370). It could be argued that document analysis can enrich qualitative research by providing "a mechanism and vehicle for understanding and making sense of social and organization practices" (Coffey, 2014: 367) and how organizations operate (Coffey, 2014).

"*Indeed, documents can be thought of as the 'physical traces' of social settings (Webb et al., 2000); as data or evidence of the ways in which individuals, groups, social settings, institutions and organizations represent and account for themselves*" (Coffey, 2014: 367).

Because this study focuses on sustainability reports for its analysis, the examined data is secondary by nature according to Eriksson and Kovalainen (2008), who posit that this kind of empirical data represents 'naturally occurring materials' or "textual data that exist without any specific collecting activities (e.g. documents, diaries, memos, stories)" (p.78). Albeit these documentary materials have been selected and in a sense collected by the researcher, Eriksson and Kovalainen (2008) posit that "texts that already exist prior to your research project (e.g. annual reports, media texts)" (p.89) are secondary by nature. More specifically this secondary data consists mostly of text but also of visual objects such as photographs, tables, and charts. Consequently, the study does not involve the collection of primary data. Nonetheless, not being involved with the collection of primary data does not mean that carrying out the research would consume less time or be easier easy somehow (Bryman and Bell, 2007) and "secondary data often provide excellent opportunities for qualitative business research" (Eriksson & Kovalainen, 2008: 89).

Nevertheless, as is characteristic to the case study method (Eriksson & Kovalainen, 2008), this study does not rely exclusively on the sustainability reports in its analysis either but draws from multiple data sources to triangulate a rich account of the case companies' sustainability reporting transparency. Besides the easily accessible sustainability reports, this study plans to take advantage of other company materials such as the other annually published reports, the company websites, press releases, etc., which can be highly useful sources of information (Eriksson & Kovalainen, 2008). In addition, this study will utilize other publicly available materials online such as news articles from the local as well as international media, NGOs, and authorities. The sustainability/ annual reports of the companies will undergo an extensive review, whereas the other materials are examined to the extent that is deemed necessary for a thick enough of a description of sustainability reporting transparency on the case companies' environmental impact.

With the aforementioned data sources forming the data corpus for this study, it can be concluded that the researcher has had no part in eliciting the publication of any of the research materials. An advantage of this type of research data is that they are an unobtrusive and non-reactive, which means that "the possibility of a reactive effect can be largely discounted as a limitation on the validity of the data" (Bryman & Bell, 2007: 555). Another issue often associated with document analysis in research is the representativeness of the documents (Bryman & Bell, 2007).

However, this should not pose a problem for the thesis as there should be no ambiguity over the representativeness of the case companies' sustainability reports as mediums to examine sustainability reporting transparency in the Finnish forest, paper, and pulp industry. Furthermore, because the sustainability reports have originated and have been obtained from the companies, these documents could be described as authentic and meaningful (Bryman & Bell, 2007).

3.5. Data analysis

To explore and describe how transparent the case companies' sustainability reporting is, the thesis has created a theoretical framework derived from the academic literature to approach the research questions. The determinants of sustainability reporting transparency, i.e. the research variables, identified in the literature review and described in Figure 1 guided the focus of the analysis. Each of the examined sustainability reports were investigated via the research variables and the relevant literature behind each variable.

This means that the thesis approaches this topic of interest with a somewhat predefined focus or lens, which "can be planned deductions of prior research or based on the pre-given theoretical interests of the researcher" (Eriksson & Kovalainen, 2008: 123). The theoretical framework helps with the coding process by creating coding categories of sorts to guide the analysis of this study. Each coding category serves as a unique lens through which the researcher examines the empirical material for how the case companies have disclosed environmental information related to and from the point of view of the specific coding category at hand. From this initial coding, sub-themes are formed, which have been further refined into themes and findings of the study.

How the analysis has been structured is that first this study intends delve into the individual units of analysis to analyze and describe each case company's sustainability reports separately with the help of the theoretical framework. Within this level of analysis, rather than presenting the findings one case company at a time, this thesis has opted to organize the findings based on the research variables so that all three examined case companies are analyzed with regards to one research variable before moving on to the next research variable. The research variables are explained in more detail in section 2.3. of the thesis. After analyzing the individual case companies' sustainability reports, the thesis sums up these observations to find patterns across the case companies on the main level of analysis on sustainability reporting transparency, as a case from the Finnish forest, paper and pulp industry. The purpose for the extensive examination of the individual case companies as units of analysis prior to abstracting the findings on a higher

level is to minimally provide rich description of the case companies' sustainability reporting to enable a more meaningful understanding of sustainability reporting transparency in a broader sense.

More specifically, the data analysis method used in this study is theory-driven thematic analysis with a primarily semantic approach to the data, which seems to suit for searching patterns from textual data such as sustainability reports (Coffey, 2014; Braun & Clarke, 2006). This approach could be argued to fall under the first of the two main strategies for case studies' data analysis proposed by Yin (2002), where 'pre-formulated theoretical propositions' and 'a formal coding procedure' form the basis for the analysis (Eriksson & Kovalainen, 2008). More specifically, this study would like to engage in 'pattern matching', which involves searching patterns from the data and comparing the discovered patterns with pre-formulated propositions derived from previous research, through thematic analysis.

Braun and Clarke (2006) define thematic analysis as "a method for identifying, analysing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail" (p.79). The reason why thematic analysis was chosen as a data analysis method for this study was because it is a simple method that is fairly easy and quick to learn, and thus suitable for someone who is new to qualitative research (Braun & Clarke, 2006).

Furthermore, this method does not require vast knowledge on theoretical frameworks or strict philosophical underpinnings and could thus be described as flexible; allowing the researcher freedom to work out themes in the data corpus (Braun & Clarke, 2006). Although, researchers should always explain how qualitative analysis has been conducted (Bryman & Bell, 2007). For instance Braun and Clarke (2006) make a point out of how qualitative research results often seem to "emerge" out of the blue and argue that there are choices to be made while carrying out qualitative research that should be made explicit (especially regarding how data analysis is conducted) albeit so far this has often not been the case.

Consequently, a key element that Braun and Clarke (2006) advocate for with regards to thematic analysis is that the researcher should always reveal the theoretical (epistemological and ontological) positions, values, and underlying assumptions for the research. Otherwise the researcher's active role in interpreting the data is denied and it is difficult for peers to evaluate the research (Braun & Clarke, 2006). Even though certain approaches to thematic analysis tend to cluster together, Braun and Clarke (2006) note that in the end various combinations of methodological choices are possible with thematic analysis and that there are no strict rules that should be abided by.

This flexibility could be argued to accentuate the need for explicit explanation on how data is analyzed with a method as flexible as thematic analysis (Braun & Clarke, 2006) "What is important is that the finished product contains an account – not necessarily that detailed – of what was done, and why" (Braun & Clarke, 2006: 86), because "even a good and interesting analysis which fails to spell out its theoretical assumptions, or clarify how it was undertaken, and for what purpose, is lacking crucial information (Holloway and Todres, 2003), and thus fails in one aspect" (p.95). Therefore, it should be repeated that this study leans on realism. According to Braun and Clarke (2006), the implication of this approach is that "you can theorize motivations, experience, and meaning in a straightforward way, because a simple, largely unidirectional relationship is assumed between meaning and experience and language" (p.85).

This thesis chose to use the theory-driven thematic analysis rather than the inductive approach, because the study was able to identify dimensions of sustainability reporting transparency in the literature review that could be used quite readily to form categories based on which the examined sustainability reports' transparency could then be evaluated. A consequence of the theory-driven thematic analysis is that the elements identified in the literature review will influence the coding of data by guiding the researcher's attention towards features of the data that are possibly related to the elements of sustainability reporting transparency identified in the literature (Braun & Clarke, 2006). In other words, with theory-driven coding it is possible to "approach the data with specific questions in

mind that you wish to code around" (Braun & Clarke, 2006: 89) and to see how the examined data fits into an existing coding frame and the 'researcher's analytic preconceptions' (Braun & Clarke, 2006). As a result, the description of the data may not be that rich in all aspects of the data because some aspects of the data are emphasized more (Braun & Clarke, 2006).

Moreover, based on Braun and Clarke's (2006) description of the semantic and latent approaches to thematic analysis, the semantic approach seemed more appropriate than the latent approach, because the study aims to dissect the contents of the case companies' sustainability reports' environmental sections. As such, this study looks at the sustainability reports through a lens of whether certain elements are present in the written text or not, and this could be described as an examination of explicit statements rather than an attempt to look for a deeper meaning and beyond what has been written. With the semantic approach, the aim is to first describe the sustainability reports' contents by organizing and summarizing the data extracts to show patterns in the data set and then to move on to interpret the data via theorized links between the discovered patterns and the existing literature (Braun & Clarke, 2006).

In doing the analysis this study aims to follow the phases of thematic analysis laid out by Braun and Clarke (2006) in Table 1 of their article, which are 1) "familiarizing yourself with your data", 2) "generating initial codes", 3) "searching for themes", 4) "reviewing themes", 5) "defining and naming themes", and 6) "producing the report". Although, as Braun and Clarke (2006) note, conducting thematic analysis is rarely this linear, but involves jumping back and forward between the various phases and different data levels.

In addition, efforts have been made to explain what choices have been made and why to answer Braun and Clarke's (2006) call for transparency on how the research results came about. Even though conducting this kind of an analytical process seems very time-consuming, this study steps on this road with sights on sound analysis (Braun & Clarke, 2006). When conducting this kind of thematic analysis, essential tools/ techniques for achieving the aforementioned goal seem to be coding and thematic maps (Braun & Clarke, 2006). Moreover, as is customary in the within-case analysis; coding is coupled

with general thematic descriptions of the case "to construct for meaning by linking empirical patterns (themes, events, processes) to each other to form a holistic configuration, the case (Stake, 1995: 78)" (Eriksson & Kovalainen, 2008: 130).

Thematic analysis could be seen to complement the case study method in the sense that also the case study method can be carried out from various from various philosophical traditions (Eriksson & Kovalainen, 2008). The levels of analysis for this study focus on the organizational and industry levels, and the researcher has the role of an outsider in relation to the texts.

In alignment with Braun and Clarke's (2006) proposition, this study's analysis began with becoming familiar with the research data, i.e. the sustainability reports, during the data collection phase. All three companies' public reporting documents for the reporting year 2018 were reviewed for public disclosures on the environmental dimension of CSR. The sections addressing the companies' environmental impact in the companies' public reporting documents for the reporting year 2018 were then read through attentively with the sole goal of becoming familiar with the materials. In other words, no particular lens of observation was applied at this stage.

After becoming familiar with the research materials as a part of the data collection, next, it was time to apply the various lenses derived from the literature and presented on the theoretical framework on the research materials. Each lens was applied one by one to start generating initial codes for how the companies had conducted themselves with regards to the determinants of sustainability reporting transparency identified in the literature. This work involved reading the sustainability reports several times over, and like Braun and Clarke (2006) indicated, also jumping back and forward between the various research variables and different data levels.

3.6. Evaluation criteria for qualitative research

According to Braun & Clarke (2006), "'criteria' for assessing qualitative research is a not uncontroversial topic, with concerns raised about rigid criteria limiting freedom and stifling methodological development" (p.96). This study supports the notion that qualitative research should be evaluated first and foremost based on trustworthiness and authenticity (Guba & Lincoln, 1994, cited by Bryman & Bell, 2007). Authenticity could be seen to be concerned with whether there is a fair representation of different viewpoints in the study and whether the research helps to create a better understanding of a phenomenon, helps to accommodate for different perspectives of a phenomenon, helps to create an impetus for change, or helps to empower members of the social setting to take steps towards action (Bryman & Bell, 2007). The trustworthiness of the research, on the other hand, should be assessed based on the credibility, transferability, dependability, and confirmability of the research (Guba & Lincoln, 1994, cited by Bryman & Bell, 2007).

The credibility of research refers to how believable the research findings are, or how confident we can be that the findings are valid and can be derived from the data corpus (Bryman & Bell, 2007). Transferability, on the other hand, could be seen to deal with the question of how valid the research findings are in other contexts than the one being examined (Bryman & Bell, 2007). After all, a trait of qualitative research is that the research tends to focus more in depth on a small number of units of analysis in comparison to quantitative research, which may entail a certain degree of uniqueness for the context of the study and raise questions of how applicable the findings are to other contexts (Bryman & Bell, 2007).

Dependability refers to how reliable the study can be seen to be, whether appropriate research procedures have been followed and whether other researchers could reach similar findings with the deployed research process (Bryman & Bell, 2007). Finally, confirmability could be seen to deal with the objectivity of the research (Bryman & Bell, 2007). Even though complete objectivity may be impossible in business research, it is important that the research has been carried out in a manner where the findings or analysis have not been overtly biased e.g. due to the researcher's personal values (Bryman & Bell,

2007). Observing the facts, the researcher should be seen to have acted in 'good faith' in conducting the research and one should be able to verify where the findings originate from (Bryman & Bell, 2007).

To pursue trustworthiness, this study uses triangulation of multiple data sources to address the question of credibility, thick description to address transferability, and uses exclusively publicly available documents to address confirmability. As for dependability, this study attempts to include a satisfactory record of the data analysis process as well as key decisions and influencing factors embedded in the research to increase the dependability of the research.

In addition, a case study should also present a balanced account of the studied phenomena from multiple point-of-views and be complete in the sense that the case and its context are well-defined (Eriksson & Kovalainen, 2008). In addition, there needs to be enough evidence to allow the reader of the study to make 'an independent judgement' of the study's relevancy and merits (Eriksson & Kovalainen, 2008). According to Yin (2018), good case studies "collect, present, and analyze data fairly" (p.34).

A difficulty commonly associated with embedded case studies is to find the correct level of analysis and to not focus too heavily on the sublevel analysis (Yin, 2018), which in this instance would refer to the case companies. If the analysis does not return to a higher level and focus on the case at hand, the study's phenomenon of interest could essentially be seen to shift and the original case to transform from the study's target into the study's context (Yin, 2018). However, albeit presenting rich description of the three units of analysis – the case companies' sustainability reports – this study could be argued to somewhat avoid this issue by abstracting what has been learned on the sublevel of analysis at the end of the findings and in the conclusions of the study.

Finally, qualitative research is often criticized for being overly subjective, difficult to replicate, and ungeneralizable (Bryman & Bell, 2007). Indeed, in terms of external reliability, a qualitative study may be difficult to replicate in the sense that "it is

impossible to 'freeze' a social setting and the circumstances of an initial study" (LeCompte & Goetz, cited by Bryman & Bell, year: 410). However, as to respond to these common criticisms on this study's behalf, it should be noted that the examined sustainability reports are readily available on the companies' websites for anyone who wishes to familiarize themselves with them.

The credibility of the examined documents is an issue that deals with possible biases present in the documents; meaning that a certain degree of caution should be practiced regarding the extent to which the document depicts the reality (Bryman & Bell, 2007; Coffey, 2014). However, seeing that most of the examined documents have been produced by the case companies themselves it could be argued that at most the documents should reflect the biases of the case companies. Although, as noted by Bryman & Bell (2007), "documents can be interesting precisely because of the biases they reveal" (p.564).

After all, organizational documents are always drafted by someone and for a purpose, which may be influenced by the writers' motivations (Coffey, 2014; Bryman & Bell, 2007). Moreover, organizational documents made publicly available may not always give out accurate descriptions of the various organizational actors' perceptions (Bryman & Bell, 2007). For these reasons, Bryman and Bell (2007) posit that organizational documents "have to be interrogated and examined in the context of other sources of data" (p.568), which is also why this study attempts to engage in data triangulation.

In other words, it should be possible for other researchers to access the same data and attempt to replicate this research. Similarly, everyone with internet access should be able to verify for themselves whether this study's research findings are valid or whether what is said holds true.

3.7. Ethical concerns

Perhaps the clearest ethical consideration for this study is, as it is with any other study, that the study needs to follow good academic practice on giving credit where it is due and not to plagiarize others' work. Securing collaboration and informed consent to participate in the research project is another common challenge that qualitative researchers face when gathering data (Eriksson & Kovalainen, 2008). In this instance, however, the research does not necessarily require collaboration from the case companies for the research to be conducted as the research examines publicly available documents. As such, the research does not e.g. invade the companies' privacy. As the research involves independent work on publicly available documents, there is no sponsorship relationship between the researcher and the case companies – or any other entity for that matter.

The sacred principle of research "do no harm" poses possibly the most interesting consideration for this research. In a sense, if the case companies have complied with the practically non-existent legislation regarding sustainability reporting and have generally followed good practice in good faith, then there should be no harm that the research can cause them. The chances of discovering something of grand scale could also be described as rather minimal, because all these documents have been publicly available for some time and no incident has risen to the surface.

But if some kind of misdemeanor or breach of public trust were to be found during the research, it needs to be acknowledged that this could potentially have negative implications for the case companies should they e.g. become the target of public outrage for something. Although, it is nigh-impossible to predict e.g. what kind of publicity the study's results might receive and whether this would be enough to cause an outrage. Moreover, from an ethical standpoint the issue is further complicated by the fact that if there were misdemeanors in the companies' conduct, then some could argue it to be a "good" thing for this conduct to come to light as otherwise the inappropriate conduct might continue and cause harm to someone else. In addition, considering the research context it could be difficult to completely anonymize the case companies. Overall, however, this study finds it unlikely that the study's results could cause harm.

4. FINDINGS

Due to the theory-driven approach of this study, the foundations of the analysis could be said to have been laid during the process of reviewing the literature. In the literature review, the following variables were identified as important determinants of sustainability reporting transparency: ease of access, comparability, reporting boundaries, stakeholder inclusiveness, internal organizational factors, and balance of positive and negative aspects. Out of these variables, all but "ease of access" can be seen to deal with the written contents of sustainability reports.

For this reason the variable "ease of access" will not be included in the study's analysis as a separate sub-section, but this study will focus on the other five variables to provide the lenses through which the sample will be examined. A factor further influencing the decision to leave the variable "ease of access" out of the analysis is that all the reports also were relatively easily available online. In a way, this could be seen as the key finding with regards to this research variable.

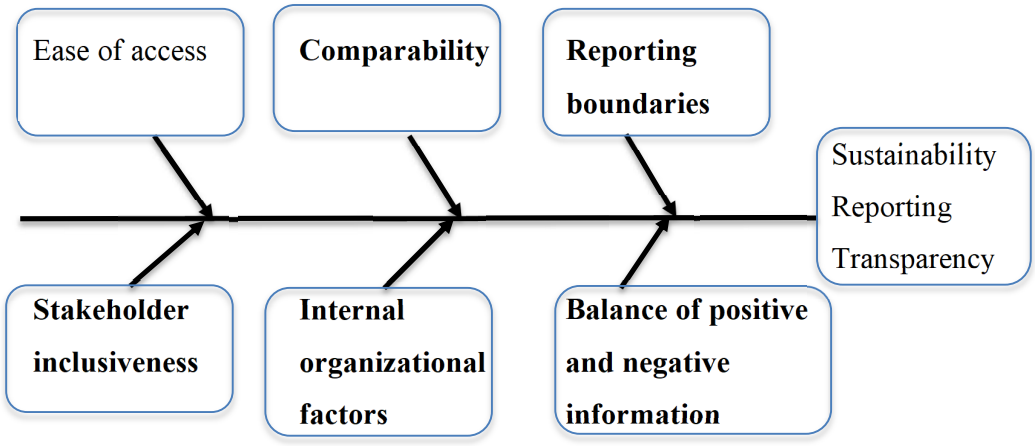


Figure 1 Theoretical framework

4.1. Stakeholder inclusiveness

Part of adhering to the GRI guidelines is a multi-stakeholder approach, which entails that companies should engage in dialogue with their stakeholders to gain input for the eventual sustainability reports (GRI, n.d.; Zsóka & Vajkai, 2018). However, when companies say that they have engaged with their stakeholders, the question becomes who exactly they engaged with and how (Zsóka & Vajkai, 2018). Were all important stakeholder groups included in this process, and if so, who was the representative of the group and what was their level of expertise? If stakeholders were surveyed, was the survey instrument free of bias?

When the report lacks transparency on such matters, there will always linger a shadow on the report's reliability (Zsóka & Vajkai, 2018). Even though measuring aspects of non-financial performance can be difficult and pitting the amount of information provided against the user-friendliness of the information is likely to remain a constant struggle, it would increase the transparency and comprehensibility of sustainability reports if companies were to clearly show which stakeholders they have received input from or how they measure given indicators (Zsóka & Vajkai, 2018).

4.1.1. Stora Enso

Stora Enso's sustainability report includes a section describing the company's stakeholder engagement, which is said to take place both in structured and ad hoc manner. Stora Enso (2018d) reports consumers, customers, employees, forest owners, governments, investors, local communities, media, NGOs, partners and suppliers, and trade unions to be its 'particularly significant' stakeholder groups. 'Key' stakeholder groups mentioned in the sustainability report seem to include at least employees, customers and investors based on the ten sustainability topics identified as material and how often these groups are referred to in the report. Furthermore, employees, customers and investors are for example separately highlighted in the 'Stakeholder engagement' section to be the target of regular surveys.

According to the sustainability report, Stora Enso's materiality review involved "124 group-level stakeholders around the world" (Stora Enso, 2018d: 7). More specifically, "the consulted stakeholders included campaigners (e.g. NGOs), customers and corporate peers, experts, investors, partners and suppliers, and the media" (p.7). In addition, Stora Enso could be described to present examples of collaboration with other well-specified parties throughout the report.

Nevertheless, it is not specified in detail who were the 124 group-level parties that provided input for the materiality assessment nor how the stakeholder's opinions were possibly weighted. Since Stora Enso can report the number of consulted stakeholders, it should also know who the 124 respondents were, but has opted not to disclose them. The only exception to this is a list of the non-governmental organizations Stora Enso lists on page 8 of its sustainability report (see Figure 2 below), which contains eleven parties.

In 2018, Stora Enso actively collaborated with a range of international organisations:

- A4S Accounting for Sustainability, pages 8, 44, and 65
- BSR, pages 13 and 20
- International Finance Corporation (IFC), page 15
- International Labour Organisation (ILO), page 14
- Science Based Targets initiative, page 42
- The Prince of Wales's Corporate Leaders Group (CLG), page 45
- Transparency International, page 28
- UN Global Compact, page 68
- We Mean Business Coalition, page 45
- World Business Council for Sustainable Development (WBCSD), pages 10, 34, 50, and 59
- WWF, pages 50 and 52

Figure 2: International organizations Stora Enso collaborated with in 2018

Otherwise, Stora Enso simply states with regards to the materiality review how the structured process asked stakeholders to rank a given list of sustainability topics and to add any possibly missing ones, after which Stora Enso presents the consolidated results. Nonetheless, it is not explained how the results were consolidated nor whether all stakeholders were consulted at the same time or separately. Using an 'external expert

organization' should of course reduce some bias from the materiality review process, and, since there is no indication of anything different, it could of course be assumed that all stakeholder feedback was weighted equally. However, this assumption would ignore the natural inclination of companies to place investors, customers, and profitability at the center of their attention.

Consequently, Stora Enso could be concluded to disclose the stakeholder groups and the total number of stakeholders consulted for its materiality review. At the same time, it withholds information on who most of the consulted stakeholders were and does not convey how the collected feedback was consolidated. As a result, the reader of the sustainability report cannot evaluate the comprehensiveness of the stakeholder selection, the distribution of engagement between the various stakeholder groups nor the competence of consulted stakeholders, all of which affect the reliability of the reported information to a certain extent.

4.1.2. Metsä Group

As a part of its sustainability report, Metsä Group (2018a) explains how the company "[has] selected indicators most relevant to [its] operations, products and stakeholders based on an assessment of the most significant sustainability issues for the company and its stakeholders" (p.63) to be reported as a part of the sustainability report. To complement this statement, the independent auditor provides its assurance that Metsä Group's sustainability report is inclusive and that the disclosed information is material. The auditor's opinion bases on e.g. the "assessment of the procedures Metsä Group has in place to ensure the inclusivity of stakeholder engagement processes, the identification of material stakeholder expectations and the responsiveness to stakeholder concerns" (Metsä Group, 2018a: 64). Overall, the auditor finds Metsä Group's sustainability report to comply to the GRI standards on the Comprehensive level (Metsä Group, 2018a: 64).

"*It is our opinion that the Report gives a fair and balanced view on the material topics and stakeholder interests; and that Metsä Group adheres in its sustainability practices to the AA1000 Accountability Principles of inclusivity, materiality, responsiveness and impact*" (Metsä Group, 2018a: 64)

At the same time, however, the auditor has the following recommendation for Metsä Group with regards to Metsä Group's stakeholder dialogue on the growth of bioeconomy and sustainable use of natural resources: "we recommend that this dialogue will be further deepened to better understand different stakeholder views" (Metsä Group, 2018a: 64).

It appears that the auditor has observed some room for improvement in both the scope and scale of Metsä Group's dialogue with stakeholders on sustainable use of natural resources and the growth of bioeconomy. On one hand, the auditor's recommendation implies that the scope of the dialogue may have remained somewhat superficial since the dialogue should be deepened. On the other hand, the dialogue may have focused on a narrow selection of stakeholders since Metsä Group essentially seems to be encouraged to broaden their horizons by attempting to more inclusively understand the whole range of diverse stakeholder views.

Moreover, the assurances from Metsä Group and the independent auditor seem to be essentially the only two things in the report that considerably advocate for the report's stakeholder inclusiveness. The report simply does not seem to provide much information for the reader to draw their own conclusions. Other than the notions that stakeholders have been engaged somehow, there appears to be no account of who has been engaged and how. Because of this lack of transparency, the auditor's recommendation, which indicates room for improvement in Metsä Group's stakeholder dialogue regarding the sustainable use of natural resources, is possibly more concerning than what it even should be. In any case, the reliability of the reporting could be argued to have been undermined to a certain extent.

According to Metsä Group's GRI index, the identification and selection of stakeholders as well as approach to stakeholder engagement are covered on pages 8-9 and pages 46-49 of the sustainability report. On page 49, one can find an infographic containing a list of Metsä Group's stakeholder groups (see Figure 3 below).

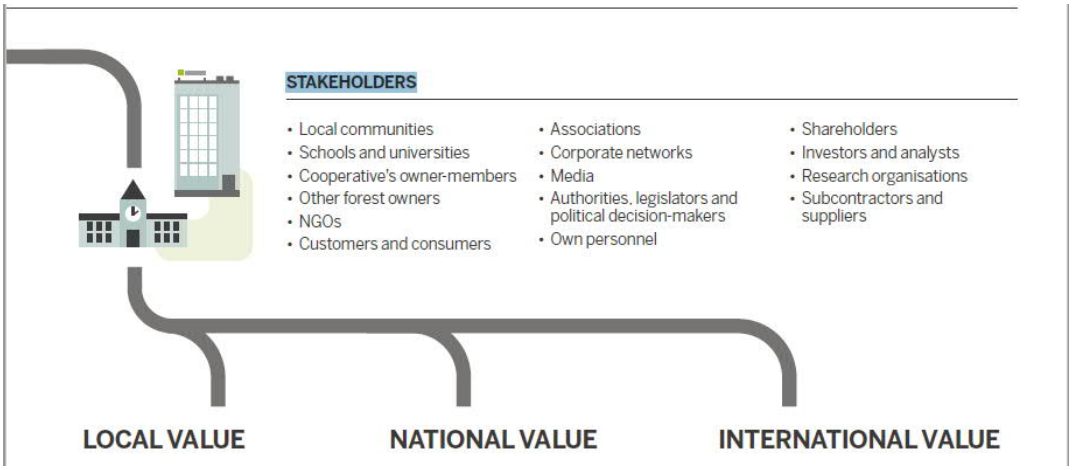


Figure 3: A list of Metsä Group's stakeholders

However, the previously mentioned pages do not seem to contain information on e.g. how many stakeholders have been consulted on Metsä Group's material topics. Metsä Group (2018a) does not specify whether all or which of the listed stakeholder groups have been consulted. There also does not seem to be indications regarding the extent to which the stakeholder groups have possibly been consulted or which specific actors have represented any given stakeholder group.

Nevertheless, it seems likely that all the identified stakeholder groups may not have been consulted to the same extent. This becomes apparent from how Metsä Group (2018a) indicates that "the views and expectations of our **primary** stakeholders guide the path for our sustainability work" (p. 8 – formatting added). Consequently, it appears that Metsä Group has identified at least two tiers of stakeholders; primary and secondary stakeholders.

This could be argued to be natural for any business. However, the company does not identify in this instance who are its primary stakeholders. From a transparency point of view this would be desirable regarding stakeholder inclusiveness since Metsä Group has given the indication in the sustainability report that different stakeholder groups' input is valued differently.

The stakeholders that are mentioned or could somehow be seen referred to on pages 8-9 and 46-49 of the sustainability report are 'other responsible actors' (p.8), customers (p.8), the UN (p.8), 'primary stakeholders' (p.8), authorities (p.46) ISO certification provider (p.46), 'other parties' (on access to water) (p.46), CDP (p.46), fish (p.46), personnel (p.48), and forest owners (p.48-49), when Metsä Group explains how it attempts to control its environmental impacts as well as create well-being and value to society. Interestingly, a considerable degree of the information on Metsä Group's process to consult stakeholders becomes apparent from the GRI Content Index, where Metsä Group (2018a) indicates that the "consultation is incorporated in the governance structure" (p.65) and the "relevant consultation is included in the regular operations and management of business units". (p.65). There does not seem to be an account of a systematic stakeholder engagement process elsewhere in the report.

It may be that the process to engage stakeholders has been explained in more detail when the material topics were first created, i.e. in another report. However, this does not change the fact that an examination of only the latest report provides essentially no information of the process that was used to arrive at these topics and who in more specific terms has been consulted. The auditor points out how Metsä "has made a commitment to active stakeholder dialogue" (Metsä, 2018a: 64) and "has stakeholder engagement processes in place in order to understand stakeholder expectations and to response stakeholder concerns" (ibid). To enhance the transparency of its stakeholder engagement, Metsä Group could describe these processes in the sustainability report.

4.1.3. UPM

UPM's GRI Content Index reveals that UPM has created a separate document listing its stakeholder groups and describing UPM's activities in relation to each group. As can be seen from Figure 4 below, UPM considers its stakeholder groups to consist of customers, communities, employees, media, government and regulators, investors, suppliers, NGOs, and researchers. The same nine stakeholder groups are also presented in the sustainability report as "our most important stakeholders" (UPM, 2018a: 49).

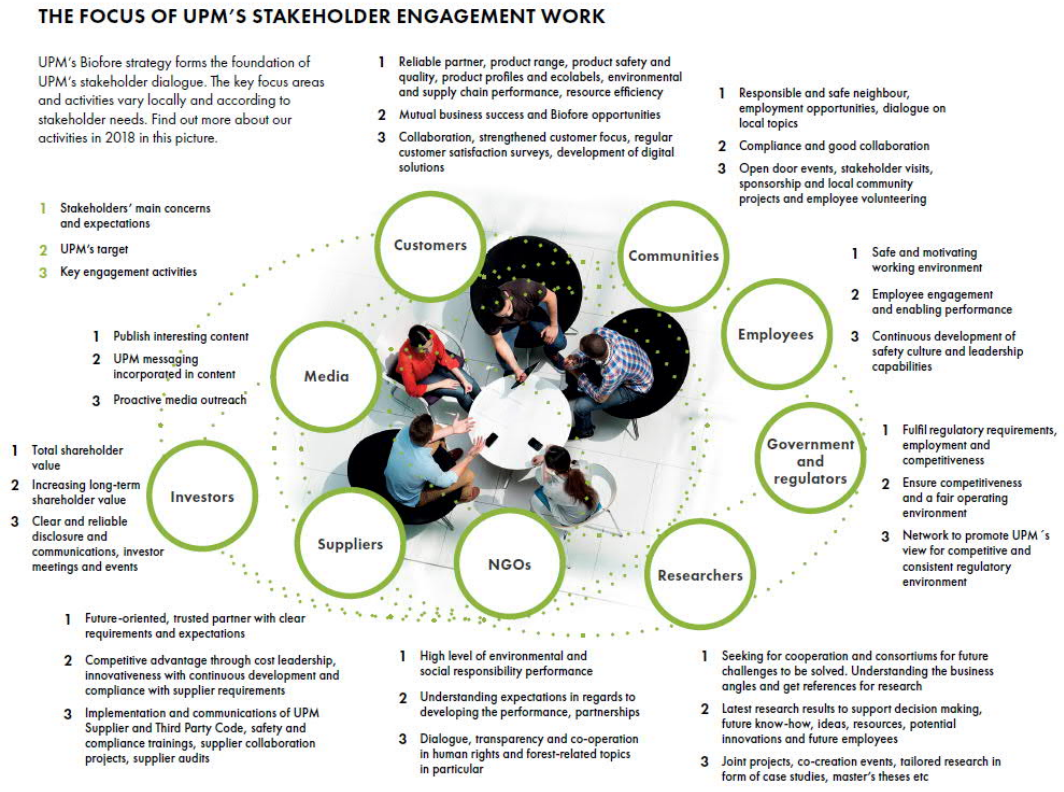


Figure 4: UPM's stakeholder group infographic

With regards to stakeholder engagement, UPM (2018a) explains how it practices 'stakeholder mapping' and "systematic gathering of feedback and views from different sources" (p.49). UMP performs its materiality analysis annually, and "the analysis is based on several surveys, customer enquiries and feedback from an open web-based tool

(see page 51)" (p.49). UPM has also used an independent third party to gather and analyze the stakeholder survey results (UPM, 2018a).

Table on page 53 showcases a bit more in detail the stakeholder engagement practiced by UPM's various business units with regards to communities, governments and regulators, suppliers, NGOs, and media. However, UPM does not demonstrate a clear linkage between stakeholder input and disclosed information. Other than seemingly engaging nine stakeholder groups there is no easy-to-digest information on how many stakeholders have been consulted for the report in total, who they were, or what was the relative engagement level between the nine stakeholder groups.

Furthermore, it could be argued that even within a stakeholder group there can be actors with various views and attitudes in relation the UPM's operations. Based on the third-party assurance provider's observations and recommendations at the end of the report, UPM's engagement with some stakeholder groups may have been limited or selective. PricewaterhouseCoopers (PwC), who acted as the third party assurance provider for UPM's sustainability report, noted in its recommendations with regards to the annual report's inclusivity that UPM should "continue collaborating and sharing knowledge with its stakeholders acknowledging different segments within stakeholder groups".

In other words, some segments of the stakeholder groups may not have been acknowledged in UPM's report. In addition, PwC encouraged UPM "to enhance the use of different methods for obtaining stakeholder feedback on the materiality analysis as well as on the responsibility focus areas, performance and reporting" (p.98).

4.2. Balance of positive vs. negative information and how negative information is disclosed

Balance is regarded as a central theme of sustainability reporting quality, being closely related to transparency as well as an expectation towards companies by the leading

sustainability reporting guideline (GRI) (Zsóka & Vajkai, 2018; Hahn & Kuhnen, 2013). Sustainability reports should include information on the negative impacts of a company's operations and a plan on how to reduce/eliminate the negative impact in the future (Zsóka & Vajkai, 2018). Previous academic research has found sustainability reports to contain an abundance of positive information, and there is little research on how companies disclose information regarding negative events and negative sustainability performance (Hahn & Lufls, 2013).

Consequently, this section of the thesis examines the balance between positive and negative information in the case companies' sustainability reporting and pertains most directly to the second research question of how negative information is disclosed. Related guiding questions have been "how information is presented in the reports?" and "what 'negative' information do the companies disclose regarding their operations and how?".

As for environmental performance, 'negative' information could be considered as information that addresses the harmful impacts of the company's operations towards the environment. From this basis, the analysis started with scanning the sustainability reports for disclosures of negative environmental impacts from the companies' operations and the factors that cause them, because previous research also seemed to indicate that companies can be vocal about their positive impacts. Key words known to be associated with negative impacts in the industry such as 'emissions', 'fossil', 'effluents' and 'water stress' were used to locate disclosures of operations' negative environmental impacts. Moreover, indications of worsened environmental performance, or increased harmful impacts to the environment from the company's operations, were also examined to see how the companies presented this kind of negative information.

4.2.1. Stora Enso

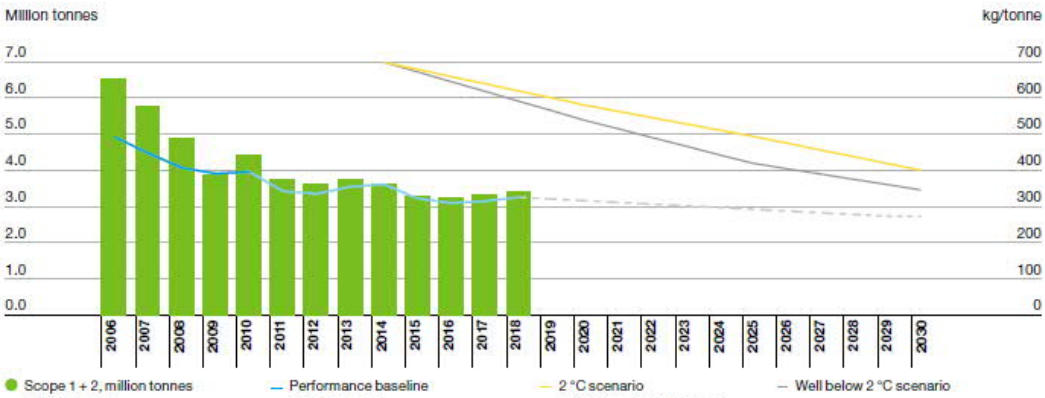
After reviewing the entire *Environmental agenda* -section of Stora Enso's sustainability report, several interesting observations were made with regards to how Stora Enso (2018d) disclosed information on its environmental performance and the balance between

positive and negative information in Stora Enso's sustainability report. For the balance of positive and negative information the chosen perspective was particularly prevalent. The patterns that were identified to drive the balance of the disclosed information toward the positive end of the spectrum involved the extensive use of parentheses, visual cues, generalization of causal links, implicit information disclosures, and overall reticence on negative performance or lack of explicitly negative statements.

4.2.1.1. Perspective on greenhouse gas emissions

In terms of the balance between positive and negative information, there is one clear choice of perspective that illustrates well the predominance of positive information in Stora Enso's sustainability report. The chosen perspective then also drives much of the selected pieces of information that are highlighted. This is the choice of perspective made with regards to the company's CO2e emissions reporting, where the focus is on the environmental performance progress made in the past eight years rather than the impaired performance that has taken place in the past two years.

Stora Enso's GHG performance[1] and scenarios for forest industry[2]
Greenhouse gas emissions (GHG) in relation to production



Scope 1+2	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016[4]	2017[4,5]	2018[4]	Target 2030
Million tonnes	6.52	5.78	4.86	3.85	4.42	3.72	3.62	3.75	3.63	3.27	3.21	3.31	3.41	
kg/tonne	494	448	407	391	396	341	334	354	361	321	308	313	324	273

Figure 5: Stora Enso's GHG performance and scenarios for forest industry (p.44)

The figure above demonstrates the trend for Stora Enso's GHG emissions between 2006 and 2018. Even though the date range starts from 2006, it is the year of 2010 that has been selected as the benchmark level for reporting the GHG emissions in the report. As can be seen from Figure 5, the lowest level of GHG emissions that the company has achieved took place in 2016, after which the total scope 1 and 2 GHG emissions have *increased* at a steady 3% rate in the last two years of the examined date range; starting to form an upward trend.

An examination of the annual emission totals presented in Figure 5 shows that Stora Enso's CO2e emissions in 2018 were over 4% higher than in 2015. Since the all-time best performance in 2016, Stora Enso's CO2e emissions have increased over 6% in just two years. Per saleable tonne of board, pulp, and paper, Stora Enso's CO2e emissions had increased by over 5% from 2016 to 2018. Yet, instead of discussing the impaired performance of the last two years, what Stora Enso chooses to highlight is the progress it has made from 2010 to 2018 – as can be seen from the information box exemplifying this in Figure 6 below.

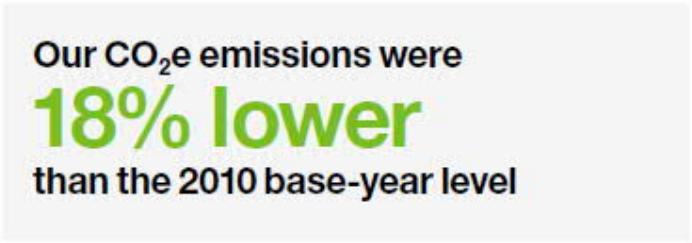


Figure 6: An information box from page 42 of Stora Enso's sustainability report

In 2016, Stora Enso's CO2e emissions were 22% lower per saleable tonne of board, pulp, and paper than the 2010 base-year level. This means that 4% of the already achieved reductions in CO2e emissions per saleable tonne were lost between 2016 and 2018. Similarly, in 2016 the annual scope 1 and 2 CO2e emissions were 27,37% lower compared to 2010, whereas in 2018 they were only 22,85% lower compared to 2010, which means that Stora Enso's performance was 4,52% worse in 2018 compared to the

year of 2016. The two-year decline was barely acknowledged at all in Stora Enso's sustainability report.

In fact, in the entire *Carbon dioxide* -subsection of the sustainability report, there seems to be only one negative sentence relating to Stora Enso's CO2 performance where the company explicitly states that its sustainability performance has declined in this area of operations. And this one sentence is sandwiched in between what could be described as several positive statements in a paragraph that ends on a neutral sentence, as can be seen from the following quote:

"*In 2018, our CO2e emissions per saleable tonne of board, pulp, and paper were 18% lower than the 2010 benchmark level (21% lower in 2017).* ***The full-year performance declined three percentage points from 2017,*** *mainly due to the increased use of peat at two Finnish mills and a higher fossil content in the generation of the purchased electricity in Finland and Poland. In absolute terms, our direct and indirect CO2e emissions were 23% lower than in 2010. Direct CO2e emissions per unit of sales production were 7% lower than in 2010. The CO2e emissions resulting from the generation of purchased electricity and heat during 2018 were 37% lower than in 2010 per unit of sales production. The total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018 (3.31 million tonnes in 2017)*" (Stora Enso, 2018d: 46).

Other than this one sentence that has been bolded above, there is really no active, explicit acknowledgement of deteriorating CO2e performance, even though many of the CO2e performance indicators for the past year have regressed for a second year in a row. Instead, there are many references to the more flattering big picture. For example, in the above quote Stora Enso notes how its direct and indirect CO2e emissions have decreased in absolute terms since 2010. However, Stora Enso does not mention in any way that in

absolute terms its direct and indirect CO2e emissions have increased by over 6% since 2016.

Moreover, the direct and indirect CO2e emissions discussed in absolute terms above refer only to scope 1 and scope 2 greenhouse gas emissions of Stora Enso's operations; excluding scope 3 emissions, which have been found to represent more than 75% of companies' total carbon footprint in two thirds of economic sectors (Antonini & Larrinaga, 2017). It could be argued that only when scope 3 CO2e emissions are included does the true total impact become apparent of what is required to run a company's operations in terms of greenhouse gases.

According to Stora Enso's (2018d) own estimate, the scope 3 greenhouse gas emissions related to the company's operations are over two times the amount of Stora Enso's scope 1 and 2 emissions. At 7,98 million tonnes of CO2e (Stora Enso, 2018d), these scope 3 emissions represent almost 69% of Stora Enso's total carbon footprint. As can be seen from Figure 7 below, Stora Enso (2018d) presents its total carbon footprint at 11,44 million tonnes of CO2e; a burden on the environment that has increased by 7% since 2014. Again, this trend seems to have lasted for multiple years and is not addressed in any way in the report other than being shown on this one table.

Stora Enso's carbon footprint 2014–2018[1 2]

	Fossil CO_2 equivalent (million tonnes)[3]					
	2014	2015	2016	2017	2018	Trend 14–18
Scope 1: Direct emissions from our operations.	2.40	2.24	2.40	2.34	2.49	4%
Scope 2: Emissions from purchased energy consumed in our operations.[3]	1.41	1.19	0.97	1.10	1.06	-25%
Scope 3: Emissions from other sources along our value chain.[4]	6.88	7.26	7.65	7.97	7.89	15%
Total	**10.69**	**10.69**	**11.02**	**11.41**	**11.44**	**7%**

Figure 7: A table illustrating Stora Enso's carbon footprint between 2014-2018 (p. 47)

The sustainability report seems to contain two explanations for the impaired CO2e performance in general. First, Stora Enso (2018d) makes the following footnote under the *Stora Enso's GHG performance and scenarios for forest industry* graphic regarding GHG performance in 2018: "adversely affected by the coal-based energy consumption at our Beihai Mill in China" (p.44), which is also later in the report explained as "currently the only feasible energy source for an industrial project of its scale in the region" (p.46). This could be seen to address the increase in the scope 1 emissions.

Secondly, the 3% decline from the previous year in CO2e emissions per saleable tonne of board, pulp, and paper is attributed to being "mainly due to the increased use of peat at two Finnish mills and a higher fossil content in the generation of the purchased electricity in Finland and Poland" (Stora Enso, 2018d: 46). This explanation could be seen to be associated with scope 1 and 2 emissions. Stora Enso (2018d) does not seem to explain as to why its scope 3 emissions have increased by 15% or dissect from which emission categories within scope 3 the increase in fossil GHG emissions stems from.

Albeit a company's ability to influence the scope 3 emissions could be argued to be more limited than scope 1 and scope 2, there are emission categories in scope 3 as well that companies can very much influence. Large companies could also be argued to be able to influence this scope more than smaller ones. Nonetheless, amidst of highlighting the progress made in the past eight years, Stora Enso seems to have chosen to fade not only the deteriorating CO2 performance of the past two years but also the increase in its total carbon footprint within the report. Moreover, this 'big picture' that Stora Enso has chosen to showcase regarding its fossil greenhouse gas emissions could, in the end, be considered only a part of the picture in this instance.

Interestingly, the carbon footprint table in Figure 7 above reports Stora Enso's combined direct and indirect GHG emissions from scope 1 and scope 2 at 3,55 million tonnes, whereas elsewhere in the report Stora Enso (2018d) states that "the total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018" (p.46). The dissimilar numbers initially seem to beg the question

if one of them is incorrect. However, the footnotes indicate that the number of 3,55 million tonnes covers all Stora Enso production units, whereas the number of 3,41 million tonnes covers only board, pulp, paper, and corrugated production units. Both numbers also seem to exclude joint operations, but this is discussed more in the '*Reporting boundaries*' -section of the thesis.

So, even in terms of scope 1 and scope 2 emissions, the reporting indeed focuses mostly only on a part of the total emissions within these two scopes. Consequently, the next question becomes whether 'all production units' included in the amount of 3,55 million also cover non-production facilities, such as office locations. Unfortunately, there are no conclusive answers to this question in the report, but it seems like these facilities are not included.

Next, to make matters even more complicated, there seems to be the concept of 'carbon neutral CO2 emissions'. Even though Stora Enso (2018d) readily presents 80% of its CO2 emissions as carbon neutral from renewable biomass-based fuels in the sustainability report, in reality there has been some earnest debate in recent years as to whether biomass even is completely carbon neutral (Liu et al., 2017; Holtsmark, 2015). There are many variables involved that interplay with each other on the topic of carbon neutral emissions and there still seems to be a considerable degree of uncertainty and lack of information in relation to all of this.

Nevertheless, some studies claim that biomass fuels could even be capable of having greater negative climate change impacts than fossil fuels (Holtsmark, 2015; Liu et al., 2017), and e.g. Liu et al. (2017) have posited that excluding biomass-based CO2 emissions from GHG calculations altogether creates an 'unfair' or biased comparison between bioenergy and fossil fuels. What can be seen to have happened with regards to the debate surrounding the carbon neutrality of biomass-based solutions is that the debate has made actors such as the *GHG Protocol Corporate Reporting Standard* and United States' Environmental Protection Agency (EPA) to start demanding separate GHG

emissions reporting for plant-based fuels (WRI & WBSCD, 2005; Smith, Gambrell, and Russell, n.d.).

Furthermore, in discussing the climate change impact of biomass-based solutions, the time span that elapses between the full rotation of the biomass seems to be of great significance. In other words, what seems to be important for the carbon neutrality of a biomass is how long it takes for the new plant to grow to the state that its predecessor was in before the predecessor was cut down. Generally speaking short rotation periods of 1-2 years seem to support the assumption of biomass being carbon neutral, but the longer the rotation length, the less likely it appears to be that the assumption may be valid (Liu et al., 2017).

A timespan that seems to be considered a particularly long rotation length for biomass seems to be in the region of 100 years (Liu et al., 2017). With what is indicated here, it seems that a biomass with this long rotation length appears to have a reduced likelihood of holding true to the assumption of carbon neutrality for biomass (Liu et al., 2017; Holtsmark, 2015). In addition, an example of this kind of slow-growing biomass are the borealis forests (Liu et al., 2017; Holtsmark, 2015), which are the kind of forests that are prominent in countries such as Finland, Sweden, and Russia, and from which 68% of Stora Enso's wood is procured (Stora Enso, 2018d).

The thesis finds it important to make this distinction that biomass is not carbon neutral in the sense that it would not emit any CO2 into the atmosphere when used. When CO2 emissions from biomass are released into the air today it takes several years for them to be absorbed again from the air into trees. Now, there even seems to be some doubt regarding what the global warming potential of biomass-based solutions is, or whether carbon sequestration can offset biomass-originated CO2 from the atmosphere in full or fast enough.

It seems that instead of being carbon neutral, biomass simply has smaller global warming potential and carbon intensity than e.g. coal. Biomass is usually classified as a renewable

resource, which makes biomass a better alternative compared to coal from the CO2 point of view (Liu et al., 2017). But it is not CO2-free and there are other issues associated with biomass that are noteworthy for a holistic evaluation, such as biodiversity concerns highlighted by the IPBES (2019) report.

Furthermore, increasing forest areas seems to currently be the only way to effectively remove CO2 from the air. As forest fires in Australia in 2019-20 have shown, and e.g. Liu et al. (2017) point out, forests are also prone to the risks that climate change itself poses in droughts and other extreme weather phenomena. According to Liu et al. (2017), recent estimates of [the global warming potential of biogenic CO2 emissions] factors may be too optimistic because no negative effects on the growth of biomass were included, like natural disturbances and climate change" (p.6). The longer the rotation length of a biomass, the greater risk could be seen to be associated with the released CO2 not being sequestrated in full.

In the end, what could be argued to matter for the climate is the amount of carbon in the atmosphere. We do not seem to know today whether there might be a tipping point after which there might be no return. In addition, the environment is unlikely to be able to distinguish between the type of CO2 in the atmosphere, biogenic or fossil, but reacts to the absolute amount of carbon in the air, which need to be reduced.

Low-carbon emission sources yield more benefits for the same amount of CO2 emissions than high-intensity carbon emission sources. For instance, biomass is a low-carbon emitter in comparison to coal. However, since time no longer appears to be on our side, it may be necessary to consider how much room there is to increase the amount of biomass-based emissions into the atmosphere in the short-term. In some instances there also seem to exist a handful of even better alternatives with even lower carbon intensity than biomass, such as hydro, wind, solar and geothermal energy, for which it might be reasonable to give preference over biomass-based solutions where applicable.

To summarize, it seems that combustion of plant-based solutions such as biomass fuels are not always and automatically carbon neutral, or without a climate change effect (Liu et al., 2017; Holtsmark, 2015; WRI & WBCSD, 2005). In fact, WRI and WBSCD (2005) seem to posit that even though there might not be net additions of CO2 emissions from biomass, "the combustion of biomass does in all cases result in net additions of CH4 and N2O to the atmosphere" (p.11 – formatting added). Methane (CH4) and nitrous oxide (N2O) are two greenhouse gases considered to be significantly more potent than carbon dioxide (CO2).

Overall, what then becomes interesting to note is that Stora Enso (2018d) has transparently reported 'carbon neutral CO2' at each production unit but does not really acknowledge the uncertainty or complexity related to biomass' carbon neutrality in any way. Moreover, Stora Enso does not seem to believe that there would be any risks that could negatively affect the growth of biomass. This becomes apparent from how Stora Enso (2018d) states the following: "when forests are sustainably managed, this cycle [of carbon neutral CO2 emissions] can continue indefinitely" (p.46 – formatting added).

Stora Enso's (2018d) justification for the claim that 80% of its CO2 emissions are carbon neutral seems to be that the forests from which the biomass comes from are sustainably managed. However, there does not unfortunately seem to be references to e.g. the rotation lengths or carbon stocks of the forests from which the company has procured its wood, to the extent and intensity of harvesting and thinning, or any further justification for the claim that Stora Enso's biomass is indeed carbon neutral.

Even the total amount of the 'carbon neutral CO2' from Stora Enso's operations is only visibly acknowledged as the relative proportion of 80% of own operations' CO2 emissions in the report (Stora Enso, 2018d). How this could be problematic from a transparency point of view is that with the way in which all of the CO2 information is presented someone less familiar with CO2 accounting might erroneously even form an image that 80% of Stora Enso's carbon footprint presented in Figure 7 or scope 1 and 2 emissions are carbon neutral. Nevertheless, the less visible acknowledgement of Stora

Enso's (2018d) 'carbon neutral CO2 emissions' as a part of a data table shows the amount to be around 13,56 million tonnes of CO2.

This amount is almost four times the amount of Stora Enso's fossil scope 1 and 2 greenhouse gas emissions and alone over 2 million tonnes more than its combined fossil scope 1, 2 and 3 emissions. In addition, this amount is not part of the presented carbon footprint, albeit an argument could be put forward that it would be more transparent to present the amount in association with the footprint. All in all, it could be said that Stora Enso's reported CO2 emissions seem to stand at 25 million tonnes of CO2, of which it is still slightly unclear whether 54.24% may or may not be 'neutral'.

Nevertheless, since Stora Enso (2018d) has presented the table in Figure 7 as well as the 'carbon neutral CO2 emissions' in the report, Stora Enso could essentially be said to have been transparent about its greenhouse gas performance. However, the chosen perspective on GHG performance as well as the proportions and balance of presented information could be argued to limit the transparency of the practiced reporting to a significant extent.

As per Stora Enso's (2018d) rather exclusive focus on the fossil GHG emissions, Figure 7 described how Stora Enso's fossil greenhouse gas emissions have risen 7% between 2014 and 2018. This can be classified as negative information and described as considerably negative environmental performance giving thought to the size of Stora Enso's operations. Yet, the only way in which this becomes apparent from the report is essentially through this one relatively small table on the bottom right-hand side corner of page 47 in the sustainability report. Focusing on the progress made in the past eight years instead of the performance during the last two in Stora Enso's report naturally makes sense in that the larger picture is of course what matters more.

Nevertheless, it is interesting that a company that has the "progress to reduce greenhouse gas (GHG) emissions as a **key performance indicator (KPI)**" (Stora Enso, 2018d: 43 – formatting added) does not address or acknowledge worsened performance on a KPI in the past two years more than they do in the sustainability report. This is the case especially

because progress on the KPI is monitored quarterly and Stora Enso has claimed several accolades for being the best in the world or among the best in the world for 'greenhouse gas management', 'combatting global warming', and 'taking leadership in climate action (Stora Enso, 2018d). Yet, there were merely two brief justifications for the impaired CO2 performance included, while multiple negative aspects in relation to this performance area could be argued to have been left unaddressed altogether.

Stora Enso does not exactly hide its deteriorated GHG performance. However, from the viewpoint of the given research variable on balance between positive and negative information, the way the information is presented clearly drives the scale of the information towards positive with all the choices that have been made with regards to the perspective and what information is emphasized. It seems that whenever greenhouse gas emissions are discussed, one should be careful to pay attention to the scope in question and possible cropping of information.

4.2.1.2. Parentheses in good use

A popular method for Stora Enso to disclose impaired performance seems to be to make a statement that contains a piece of statistics. This statement could be characterized as a positive or neutral statement in itself, which is accompanied with a piece of statistics in parenthesis. The second set of statistics in the parenthesis at the end of the statement would be the key to conveying the negative information. In themselves the two pieces of statistics are quite neutral, but when compared to each other, the reader would notice that this year's performance was worse than the previous year's performance. For example:

"*In 2018, our CO2e emissions per saleable tonne of board, pulp, and paper were 18% lower than the 2010 benchmark level (21% lower in 2017)*" (Stora Enso, 2018d: 46).

"*The total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018 (3.31 million tonnes in 2017)*" (Stora Enso, 2018d: 46).

"*Using this amount of renewable energy instead of light fuel oil for heating for example resulted in estimated emission reductions amounting to 0.24 million tonnes of fossil CO2 (0.25 million tonnes)*" (Stora Enso, 2018d: 46).

"*Direct emissions from our operations account for 22% (20% in 2017) of our carbon footprint…*" (Stora Enso, 2018d: 47).

"*In 2018, the total amount of wood (including roundwood, wood chips, and sawdust) delivered to our mills was 38.7 million m3 (solid under bark) (37.5 million m3 in 2017)*" (Stora Enso, 2018d: 51).

"*The total area covered by group certifications in Russia was 1 312 500 hectares (1 336 000 hectares in 2017)*" (Stora Enso, 2018d: 52).

With this method of disclosing information, the company does not "say out loud" that performance has declined, but lets the reader deduce the fact, if they look closely at the numbers. This way Stora Enso could be seen to not actively disclose deteriorated environmental performance but leave it to the reader to notice, or to not notice, that this year's emissions have increased. Although, it must be noted that the use of parenthesis is not exclusive to impaired performance, as can be seen from below:

"*In addition, 8 309 tonnes of sludge classified as hazardous waste was generated at the disused Falun copper mine in Sweden (16 276 tonnes)*" (Stora Enso, 2018d: 37).

"*The PfR utilisation rate in our paper and board production was 26% (26%)*"
(Stora Enso, 2018d: 37)

"*In 2018, Stora Enso's Group-wide nitrogen effluents to water amounted to 1 180 tonnes (1 210 tonnes), phosphorus effluents to 110 tonnes (112 tonnes), and AOX to 300 tonnes (297 tonnes)*" (Stora Enso, 2018d: 38).

"*In 2018, Stora Enso's Group-wide SO2 emissions amounted to 2 900 tonnes (3 030 tonnes in 2017), NOx emissions totaled 10 840 tonnes (10 920 tonnes), and emissions of fine particles amounted to 1 740 tonnes (2 190 tonnes)*" (Stora Enso, 2018d: 39).

"*By the end of 2018, dual forest certificates had been obtained by 73 farmers (74 at the end of 2017) for areas totalling 38 054 hectares (37 831), including 15 992 hectares (15 895) planted with eucalyptus*" (Stora Enso, 2018d: 53).

However, this method of using parentheses for disclosing information could be argued to fade much of the possible negative 'edge' of the information while simultaneously perhaps relaying a sense of detachment and disownment – especially if compared to a more active approach. This approach could e.g. look like this: "the total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills slightly increased from last year to 3.41 million tonnes in 2018". As opposed to what was written: "the total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018 (3.31 million tonnes in 2017)" (Stora Enso, 2018d: 46).

Albeit being used throughout the report, the parenthesis method is more pronounced for reporting negative information, because there is less variation in the ways negative information is disclosed in comparison to positive information, which could be argued to make the technique more prominent for disclosing negative information. The parenthesis method coupled with the chosen long-term perspective means that the statement before the parenthesis has either a positive or quite neutral tone practically every time. In this

manner these choices regarding how to disclose non-financial information could be seen to combine to contribute to a considerably more neutral and passive tone when disclosing negative environmental performance.

In some of these sentences the statements could be characterized as negative in themselves even without the parentheses, since e.g. the following statement: "the total direct and indirect CO2e emissions from Stora Enso's board, pulp, and paper mills amounted to 3.41 million tonnes in 2018" (Stora Enso, 2018d: 46), actually signifies a considerable burden on the climate. The amount represents a little more than 6% of Finland's greenhouse gas emissions (Statistics Finland, 2019), or the amount that approximately 327,885 Finns release into the atmosphere in a year (Sitra, 2018). With an average passenger car used in Finland that emits 155,4 grams of CO2e per kilometer (Liikennefakta.fi, 2020), one could drive almost 547,558 laps around planet Earth.

If this person were to drive 80 km/h without pitstops, one lap around the world would take a little less than 21 days. Driving to create the same amount of CO2 that Stora Enso emits in a year would take more than 34,000 years. And this represents approximately only one third of Stora Enso's reported fossil carbon footprint.

However, most of these numbers, much like CO2 in itself, are quite intangible to most people and do not convey much information in themselves. Or at least it may be difficult to comprehend without tying the information down to something like driving years on end, where the concepts of time and driving a car may be more familiar and thus easier to comprehend.

Finally, how many people in the world even comb through companies' 200 pages long annual reports? It could be argued that most people *do not* read them, and those that do may have more of a glance than perform an in-depth analysis. For this reason, the means of disclosing non-financial information are pertinent to the transparency of sustainability reports.

4.2.1.3. Explicit explanation of negative impacts

Overall, Stora Enso's sustainability report seems to contain a total of eight negative sentences actively describing negative environmental impacts from the company's operations in addition to the one presented earlier with regards to CO2e emissions per saleable tonne of board, pulp, and paper.

Six of these negative sentences were clustered into the *Environmental incidents in 2018* table illustrated in Figure 8. Five of the incidents involved mills exceeding permit limits for emissions in a given time period either for chemical oxygen demand (COD), phosphorus, biological oxygen demand (BOD), sulphur dioxide (SO2), or dust. In one of the environmental incidents pitch oil was spilled into the Baltic Sea.

Reporting on all six environmental incidents followed the same format. First, the negative impact on the environment was disclosed with one sentence. Next, a sentence with an explanation followed for what had happened. After these two sentences Stora Enso indicated that there was no environmental impact or that the environmental impact was not significant if the company considered the extent of damage as not significant. Lastly, corrective actions were described to remedy the impacts and to prevent future ones.

Environmental incidents in 2018

During 2018, Stora Enso continued to develop the procedures for effective Group-wide reporting and management of environmental incidents at our production units. The list below gives details of environmental incidents involving a non-compliance with environmental legislation or permit, or a significant stakeholder concern related to environmental performance.

Unit	Incident	Corrective actions
Anjala/Ingerois mill integrate	The mill's daily COD limits during March and annual Chemical Oxygen Demand (COD) and phosphorus effluent limits were exceeded. This was due to a mechanical malfunction in the bio-sludge thickener and increased bio-sludge content in the wastewater treatment plant. The authorities were regularly informed and there was no environmental impact in the receiving waters.	The mechanical malfunction was repaired, and the wastewater treatment process was optimized. The recovery of the bio-sludge and activated sludge process took a few months to complete. Process performance was improved by using an online database control system utilising predictive analytics and simulation.
Heinola Fluting Mill	The mill's monthly limits for effluent containing COD, biological oxygen demand (BOD) and phosphorus were exceeded in May during the start-up of the mill and wastewater treatment plant after a longer than normal investment shutdown. There was no environmental impact in the receiving water.	Actions were taken to decrease the load into the treatment plant to speed up and support its recovery.
	The mill's annual limit for diffuse sulphur dioxide (SO_2) was exceeded. This was due to malfunctioning recovery plant absorption tower equipment.	Corrective actions were taken related to new alarm limits set in the factory system. Investigation of the case was initiated.
Enocell Mill	The mill's monthly limit for effluent containing phosphorus was exceeded in July and August due to a combination of phosphorus in the incoming effluent during the summer and improper operation of the sludge treatment. The environmental impact was not significant.	Corrective actions were taken related to sludge dewatering and chemicals were added to precipitate phosphorus.
Skutskär Mill	Pitch oil from the pulp production process was accidentally discharged to clean water effluent in the port basin during October. During start-up after a maintenance stop the preheater for pitch oil to the lime kilns broke due to high pressure in the preheater. The environmental permit was not breached as effluent was kept within the permit limit for suspended solids. Part of the oil leaked from the port basin to the Baltic sea where small amounts landed in shores and island in Gävle archipelago. Pitch oil is not toxic or dangerous to the environment, but it is sticky in texture and can cause problems for sea life.	Troubleshooting and cleaning measures were started immediately upon detection. The removal of pitch oil from the port basin and the sea, beaches and islands in the bay of Gävle outside the mill was finalised during November. Preventive actions have been taken and procedures were reviewed to make sure the incident will not happen again.
Sunila Mill	The dust emission permit limit was exceeded at one recovery boiler in April and November.	Rebuild of existing equipment will be made in spring 2019. Option for additional rebuild or installation of new equipment may be planned for the 2020 maintenance stop.

Figure 8: A table describing Stora Enso's environmental incidents in 2018 (p.41)

In a sense, the table on Stora Enso's environmental incidents illustrates quite well the prevalence of balance between positive and negative information and how negative environmental impacts are addressed. The company readily points out if there was no environmental impact observed in the aftermath of the incident or if this impact was not significant but at the same time is quite taciturn on the negative events and impacts in general. For example, with the Enocell mill in Figure 8, Stora Enso describes the environmental impact as 'not significant' but does not describe the impact that has taken place in any way for the readers to evaluate the matter themselves.

Apparently, there was an impact on the environment from this incident at the Enocell Mill, albeit not significant, but the reader does not know what the impact was. Questions could also be raised about the possibility of an average reader to be able to readily deduce what the impact must have been like based on the information provided. As for the Skutskär mill, where pitch oil was spilled into the sea, Stora Enso (2018d) discusses pitch oil's characteristics on a general level and how it can be harmful for sea life but does not indicate whether this incident harmed sea life near the Skutskär mill.

In relation to the Heinola Fluting mill, Stora Enso (2018d) explains how the "annual limit for diffuse sulphur dioxide (SO2) was exceeded" (p.41) but again there is no explanation of the nature of the negative impact on the environment. Based on the reporting on the other environmental incidents, it may also be that this incident had a significant environmental impact, since there is no indication of the incident resulting in an insignificant or non-existent impact on the environment. Similarly, in the case of the Sunila mill there is no description of the impact caused by the exceeded dust permission limit. All that an uninitiated reader can interpret from the disclosed information is that something has happened which was not supposed to happen and that for some reason(s) dust emission levels have been decided to be regulated.

Telling with regards to the overall balance between positive and negative information in Stora Enso's sustainability report is also that two thirds of the few negative sentences are bundled in this one half-page table on the environmental incidents. Having the report

contain little to no negative information is naturally a positive remark and something to aim for as long as there truly was no or little negative performance or events to disclose. However, based on the examination of the report so far, this does not seem to have entirely been the case.

Besides the one negative sentence in the report with regards to the company's CO2e emissions and the ones presented here, there are two negative sentences outside of the environmental incidents table in the report. The first one relates to a considerable increase in the amount of hazardous waste generated in the company's production:

"*During 2018, Stora Enso's production units generated a total of 5 229 tonnes of hazardous waste, up from 3 858 tonnes in 2017*" (Stora Enso, 2018d: 37).

The last explicit negative sentence in the sustainability report deals with the company's water use as a part of its operations. The sentence on water use reveals how Stora Enso has "identified five mills operating in water basins where water stress occurs" (p. 35) after applying WBCSD's Global Water Tool to identify water use -related risks in its operations. But this seems to be as much information as Stora Enso is willing to disclose on the matter. In terms of water use, Stora Enso (2018d) admits that its production processes need "large amounts of water" (p.35). However, Stora Enso (2018d) does not identify which mills operate in water-stressed areas, where the five mills are located, how severe or continuous the experienced water stress is in the areas, or what sort of an impact their operations have or may have on the local environments and people.

This level of transparency could be described as rather limited. In the report, Stora Enso (2018d) explains that "the total proportion of our water withdrawn from water stressed basins [is] 2%" (p.35). As a percentage this naturally does not appear to be considerable amount – barely an inconvenience. Nevertheless, an important consideration here is the vast size of Stora Enso's global operations.

Overall, Stora Enso's operations use 589 million m³ of water (Stora Enso, 2018d). Two percent of this equals to 11,780,000 m³ of water, almost twelve million cubic meters of water, which is an amount that would be enough to last 230,528 Finns for a year (Motiva, 2019), or to fill 4,712 Olympic swimming pools. Alternatively, the same amount of water could be used to produce 94,240,000 apples, 73,625,000 bananas or 40,620,689 kilograms of potatoes (Water footprint network, 2017).

In the end, essentially only one water stress situation can be seen to have been touched upon in the report – with two sentences. This is the situation that Stora Enso (2018d) has identified as the most severe one during 2018; located at Nymölla Mill next to Lake Ivö in Sweden:

"*The mill was forced to close production on one pulp line and one paper machine in October due to extremely low water levels*" (Stora Enso, 2018d: 38).

As for Lake Ivö, it is the largest lake in Skåne (Ivösjökomittén, n.d.1) and an important national site for its conservation, outdoor, fishing, and cultural environment value (Persian, 2019). Lake Ivö is also home to several protected species, such as eel, catfish (Ivösjöns fiskevårdsförening, 2017) and spined loach (Ivösjökomittén, n.d.1). For these reasons, Lake Ivö has its own conservation plan as a part of *Natura 2000*, the EU's network for valuable nature, to which Lake Ivö has belonged since 2004 (Ivösjökomittén, n.d.1). The lake also functions as a reserve water resource for the four municipalities in the area (Persian, 2019).

The fact that Stora Enso closed one pulp line and one paper machine meant that the production at Nymölla mill was approximately halved due to the severe drought (Francis, 2018). Stora Enso estimated on its Q3 interim report that the decreased production capacity would have a negative impact on operational earnings before interest and taxes

in the region of 10 million euros (Stora Enso, 2018e; Lindén & Ottosson, 2019). In total the production capacity at Nymölla mill was reduced for 11 weeks (Stora Enso, 2018e).

Nevertheless, downshifting the production was important because emissions from wastewater treatment plants have a particularly significant effect on the environment during droughts like the one experienced at Lake Ivö in the summer of 2018 (Persian, 2019). Although Stora Enso's move to downshift production was commended by Florence Eberhardt (Persian, 2019), a municipal ecologist and the secretary of Lake Ivö Committee's special working group tasked with promoting Lake Ivö's sustainable use (Lindén & Ottosson, 2019; Ivösjökommittén, n.d.2), at the same time Eberhardt seems to call for the current water rights to be reviewed (Persian, 2019).

The water permit regulations dictate how much industrial actors can draw water from and release wastewater into water systems. However, Eberhardt points out that the current thresholds may be outdated, and they may fail to adequately consider the possibility of extreme weather phenomena (Persian, 2019). After all, Eberhardt posits that the nature always reacts to weather conditions and she encourages companies to consider what they can do on their part (Persian, 2019).

All in all, it seems like there has not been permanent damage from the drought on Lake Ivö. If Stora Enso limited its production voluntarily, it would have made a nice case example and a good story on how environment is taken care of as a part of the company's sustainability reporting. It could have used the case example to spur other companies into climate action by showcasing the financial risks companies bear with climate change related extreme weather. It could have been an opportunity to showcase how companies can act to preserve biodiversity. On the other hand, if Stora Enso was truly *forced* in a more literal sense, for example by the authorities, to cut down on the production, this would also have been interesting to know. Nevertheless, none of these kind of aspects regarding Lake Ivö were brought to the fore, and the sustainability report touched upon the situation with two sentences.

Even though almost 96% of the withdrawn water is returned to the local environment in Stora Enso's operations (Stora Enso, 2018d), in water stressed areas simply the act of withdrawing large amounts of water required for the mill's operations may have dire impacts on the local environment. Moreover, in water stressed areas water effluents released from operations pose a greater risk to the local environment than in non-water stressed areas. These aspects became visible for example in the case of Lake Ivö.

"*In 2018, we transparently disclosed our water-related strategies and performance to CDP Water (score of B-)*" (Stora Enso, 2018d: 35).

Moreover, as above quote demonstrates, Stora Enso has clearly room to improve in terms of its water-related environmental performance as the score of a B- could be described as a rather mediocre result based on the simple observation of the nine-step grading scale ranging from A to F (A, A-, B, B-, C, C-, D, D-, F). Stora Enso does explain in its sustainability report what it aims to do with regards to water stewardship but does not explicitly disclose information on e.g. why it 'only' scored a B- in the CDP's evaluation. Was the score of a B- due to the five mills located in water stressed areas, or are they unrelated? Are Stora Enso's processes related to water use mediocre **and** it applies these processes in five water-stressed areas?

Contrary to the discourse on page 35, where five mills have been acknowledged to operate in areas with water-related risks, on pages 33 and 38 of Stora Enso's sustainability report the set-up has somewhat reversed. On these pages the discourse indicates how "some mills have been impacted by water stress in terms of availability and increased water temperatures" (Stora Enso, 2018d: 33 – formatting added). This way of presenting the mills as being affected by water stress seems like a different dynamic from mills operating in water stressed areas.

If mills operate in water-stressed areas one could assume the mills to perhaps be more often or continuously affected by the water stress, whereas when "some mills have been impacted by water stress" it seems as if the mills have temporarily been affected whereas they normally are not supposed to be since they do not operate in water-stressed areas. This impression is further strengthened, when on page 38 Stora Enso refers to 'water stress situations' that the company attributes to "the unusually long, warm, and dry summer season in northern Europe" (Stora Enso, 2018d: 38). In addition, on page 37, Stora Enso (2018d) discusses how the company has "continued to identify mill-specific water-related challenges and opportunities in 2018" (p.37) and "focused on assessing water efficiency activities at Imatra, Sunila, and Enocell Mills in Finland" (p. 37).

It could be argued that usually Finland – the country of thousands of lakes – or northern Europe for that matter are not the first areas to be associated with water stress. For these reasons, it seems plausible that Stora Enso has five mills operating in water stressed areas **and** some other mills that have experienced water stress situations due to unusual weather phenomena. Although, since all the mills operating in water stressed areas and experiencing water stress situations have not been identified, naturally this study cannot draw definitive conclusions on the matter.

Nonetheless, similarly to how it would have been interesting to know more about the five mills operating in water stressed areas, from a transparency point of view it would also be interesting to know more about the circumstances surrounding the other mills that experienced water stress situations. More specifically, whether the mills have contributed to these experienced water shortages and increased temperatures, and what kind of impacts there have been from the water stress on the local environments and the people in the areas. However, the mills' relation to the experienced problems or the surrounding environment is not again really discussed at all.

Finally, Stora Enso (2018d) appears to possess an interesting perspective on water scarcity as the company states that "while water is relatively abundant in most of our production locations, water scarcity may still impact operations locally and through our

wider supply chains, as controls on pollution, recycling, and water pricing are tightened" (p.33). The statement seems to be a mix of an acknowledgement of water scarcity prevalent in operations and a hypothetical generalization of the existing possibility, where it almost seems as if tightening controls on pollution, recycling, and water pricing are considered to be at fault for water scarcity and sabotaging operations. In a way this could even be seen to be the case from an operational perspective, but on the other hand usually such controls are put in place for reasons that could be seen to support the long-term continuity of the operations rather than for them to simply be a nuisance.

4.2.1.4. Generalization

Another interesting way of disclosing negative information in a sustainability report, albeit to a lesser extent present at Stora Enso's report, seems to be for the company to discuss the negative environmental impacts on a general level without a clear and obvious linkage to its own operations. This general-level discussion may also imply that even though certain negative impacts can result from certain activities, these impacts do not pertain to this company's operations. In Stora Enso's report the generalization was usually done at the introductory start to the report's subsections. For example:

"*The discharge of process water that has not been properly treated can contribute to local environmental impacts. Excessive concentrations of phosphorus compounds in water, together with nitrogen compounds and organic substances, can lead to increased biological activity in natural watercourses through eutrophication*" (Stora Enso, 2018d: 38).

"*When not properly managed, CO2 contributes to global warming while SO2 and NOx emissions affect air quality and cause acid rain and soil acidification*" (Stora Enso, 2018d: 39).

"*The big challenge for modern forestry is to maintain biodiversity for future generations*" (Stora Enso, 2018d: 53).

4.2.1.5. Implicit information

Lastly, one method to disclose negative information in sustainability reports, possibly inadvertently, seems to be that the company simply tells how it has started to do something – something that it previously has not done. This may include declarations regarding an investment decision or that something has been fixed or improved upon without describing the preceding problem. For example:

"*During 2018, Stora Enso started to roll out Group-wide Chemicals Management Instructions, which outline the minimum requirements for all our units globally, including occupational health and safety and environmental safety. During the year, we identified the properties of chemicals that need restricted use or should be replaced*" (Stora Enso, 2018d: 37).

"*Our EUR 25 million investment at Maxau Mill in Germany to install a new steam turbine with a closed-loop cooling system and additional biomass storage is expected to be completed in 2020. The cooling system will relieve pressure on the Rhine River through a lower thermal output and by withdrawing considerably less water*" (Stora Enso, 2018d: 38).

"*In 2018, Stora Enso completed the EUR 14 million investment at Imatra Mills to replace and modernise its odorous gas treatment system including a new boiler. The new boiler went into operation in 2017 and is estimated to reduce the boiler's NOx and SO2 emissions by 10%. Air quality in the surrounding residential areas has improved and measurements have shown that the number of hours with traces of malodorous gases in the air has been reduced*" (Stora Enso, 2018d: 39).

"*In 2018, Stora Enso and the Swedish Meteorological and Hydrological Institute (SMHI) began an eighteen-month cooperation project. SMHI's data is combined with forest data in a digital service that can be used to plan harvesting activities. The service is based on the forest industry's need to reduce soil damage and to pursue more efficient and sustainable forestry. The digital service can provide valuable soil condition forecasts*" (Stora Enso, 2018d: 52).

On the face value all these represent purely positive developments, where action is taken to reduce negative impacts from the company's operations. However, if the sentences were to be examined closely, do these examples also mean that Stora Enso still uses chemicals that should be replaced for human and environmental health and safety; that the Maxau Mill places considerable pressure on the Rhine river; that the air in residential areas close to the Imatra Mill has had traces of malodorous gases for several hours per day and still does for some hours (although not as much as previously); and that the forest industry continuously causes soil damage that is not very sustainable?

None of these negative impacts that the sustainability report seems to imply have been described in the report. Because the sample consists of sustainability reports for 2018, this study cannot ascertain whether these issues have been addressed in previous years' reports. However, can the reader be assumed to have read the previous years' reports and how familiar should the reader be with various ecosystems? Or is there information that is missing here that could improve transparency of the reporting?

The notion of soil damage appears particularly material information as the above quote is not the only instance where Stora Enso mentions the issue, as demonstrated in the following excerpts and Figure 9 below:

"*One example of good practice is our "Right Method" system to pre-plan logging roads, which reduces damage to the soil and fuel consumption by about 10%, according to studies made by our wood supply organization in Sweden*" (Stora Enso, 2018d: 47).

"*Stora Enso's employees and forestry contractors are given on-the-job training in ecological management, and we regularly monitor the impacts of our operations on biodiversity, soil, and water resources*" (Stora Enso, 2018d: 51).

A harvesting method better for the soil

The wet and mild winter of 2017–2018 in Scandinavia was challenging for the forest industry, making a method developed by Stora Enso, named "Rätt Metod" (Right method) in Swedish, very useful – both in Finland and Sweden.

"Basically, our method is about making thorough pre-studies of the ground to find the most durable spots within a harvesting area where the wood can be transported without damaging the soil and water streams. In the future, global warming will increase the need for harvesting on soft ground," says **Vegard Haanaes**, Development Manager at Wood Supply Sweden.

Figure 9: An information box about avoiding soil damage (p.51)

After all, soil damage could also be seen to connect to the earlier discussion about 'carbon neutral' CO2 emissions and the sustainable management of forests. However, for someone not intimately familiar with forestry, the concept of soil damage or the pervasiveness and gravity of the problem may not be clear. From sustainability reporting transparency's point of view, it could be argued to be fair to present and describe these kinds of prevalent problems within an industry to enable more insightful decision-making also for less knowledgeable stakeholders.

4.2.1.6. Visual cues to guide attention

Figure 10 below with the added red squares illustrates how Stora Enso attempts to create positive mental associations for the reader regarding its operations at the start of the sustainability report's sections.

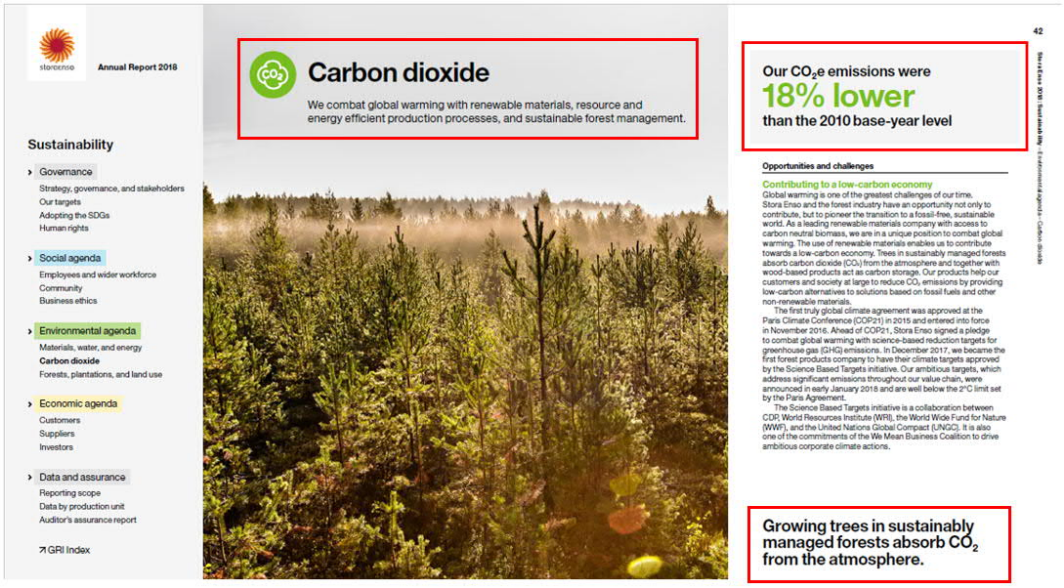


Figure 10: Page 42 of Stora Enso's sustainability report. Red squares added by the researcher.

In the example, a glance at the page directs the reader's attention to the beautiful forest picture, the carbon dioxide headline, the 18% emission reduction and to the notion of sustainably managed forests with clever use of font size and other visual cues. The selective piece of statistics of an 18% emission reduction is further highlighted in the light gray background color of the information box. Stora Enso seems to want the reader to associate the company's operations in relation to the topic of that particular section with a positive conception. The information that could contribute to an opposite effect is placed in the footnotes and parentheses, or implied and sandwiched between positive information.

Besides the use of parenthesis, much of the subtle negative information on Stora Enso's environmental performance seem to have been included in charts and graphics with such scales that visibly emphasize the positive long-term trend but fade away the possible undesirable more recent developments in the company's performance.

Nevertheless, to pull this section on the balance between positive and negative information in Stora Enso's sustainability report together; much of the absence of negative information in Stora Enso's sustainability report is of course due to the remarkable work that Stora Enso has undertaken to diminish its environmental impacts. Stora Enso's sustainability report contains substantial amounts of positive information for the progress the company has made with regards to a multitude of areas of its operations – *and rightly so*. However, it needs to be remembered that the company's primary concern is to make money – *as it should be*.

Nevertheless, the company's approach to disclosing information could be considerably more balanced. Within the company there are a handful of people who have the best overall understanding of the company's impacts on society and the environment. Even within the company, the further away one is from these people's position, insight, and the information they have at their disposal, the less one understands the company's overall impact – not to mention the people outside of the company.

One cannot expect a company to be e.g. carbon neutral in an instant, and setbacks are bound to happen on the path towards sustainability. It could also be said that Stora Enso has been transparent with regards to its shortcomings in that it has disclosed its CO2 emissions and it has provided some explanations for them. Nevertheless, at the same time it is difficult to imagine that the information would be disclosed in quite this manner if the information were about financial performance rather than GHG performance.

From a transparency point of view, it could be argued that the issue in Stora Enso choosing to focus on the progress in the past eight years instead of the impaired CO2 emission performance in the last two years is not as much in this choice of perspective as

it is in the quite extreme manner of presentation where the former is overwhelmingly present and the latter is addressed at minimum in the report. In the end, the way negative information with regards to environmental performance is reported seems quite taciturn and restrained as well as, well, quite superficial.

4.2.2. Metsä Group

The following quotes could be seen to provide an indication of the balance between positive and negative information in Metsä Group's sustainability report:

"Sustainability is part of everything we do. The foundation of our sustainability work consists of four themes covering all our operations" (Metsä Group, 2018a: 12).

"We use raw materials, water and energy resource-wisely and produce renewable energy from our production side streams. This is sustainable and resource efficient bioeconomy, where Metsä Group is a forerunner" (Metsä Group, 2018a: 16).

"Continuous improvement and excellence in all operations supports the target of Metsä Fibre to have industry's best environmental performance and its utilisation in stakeholder collaboration" (Metsä Group, 2018a: 20).

"Metsä Group's main raw material, wood, comes from sustainably managed Northern forests where growth exceeds use. We always know the origin of the wood we source and ensure sustainable forest management with forest certification" (Metsä Group, 2018a: 28).

"We work for a better climate and environment" (Metsä Group, 2018a: 38).

"*Metsä Board is an exemplary rolemodel for successfully managing water issues*" (Metsä Group, 2018a: 46).

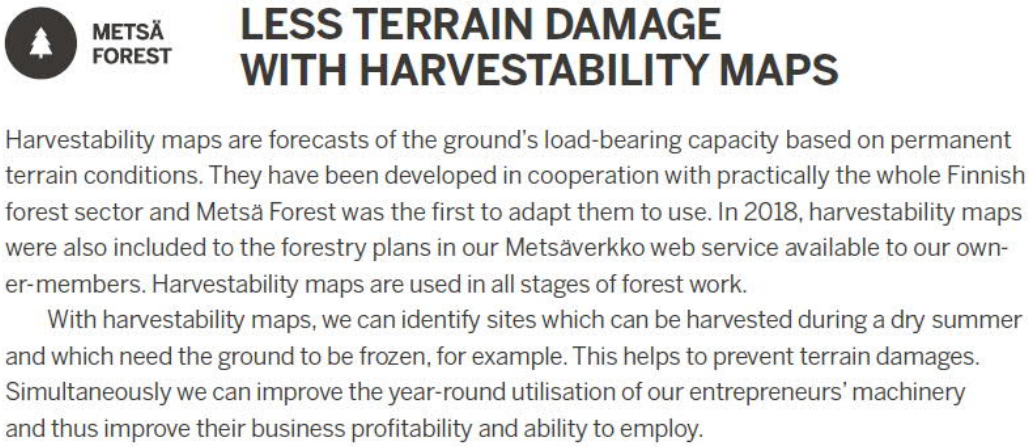
The balance of information presented in the report could be described to lean towards predominantly positive information.

4.2.2.1. Implicit information

As for how Metsä Group discloses information on negative environmental impacts and performance, also Metsä Group could be seen to disclose some negative information about its impacts implicitly.

4.2.2.1.1. Soil damage

The sustainability report contains for instance explanations on how measures have been taken to improve the operations' environmental performance, but the existing problem with operations has not sometimes been described even on a general level, not to mention in relation to the company's operations. To someone not intimately familiar in forestry or the industry, it may be unclear why the measures have been taken and what are the risks associated with the company's operations towards the environment. How Metsä Group (2018a) discusses soil damage from its operations is perhaps the best example of the implicit disclosure of negative information in the sustainability report, which is exemplified in Figure 11 below.


METSÄ FOREST

LESS TERRAIN DAMAGE WITH HARVESTABILITY MAPS

Harvestability maps are forecasts of the ground's load-bearing capacity based on permanent terrain conditions. They have been developed in cooperation with practically the whole Finnish forest sector and Metsä Forest was the first to adapt them to use. In 2018, harvestability maps were also included to the forestry plans in our Metsäverkko web service available to our owner-members. Harvestability maps are used in all stages of forest work.

With harvestability maps, we can identify sites which can be harvested during a dry summer and which need the ground to be frozen, for example. This helps to prevent terrain damages. Simultaneously we can improve the year-round utilisation of our entrepreneurs' machinery and thus improve their business profitability and ability to employ.

Figure 11: Information box on reducing terrain damage with harvestability maps (p.18)

Explicitly Figure 11 above describes how harvestability maps are a measure that Metsä Group has deployed to reduce the damage from its operations on the terrain. On a more implicit note what becomes apparent from Figure 11 is that, indeed, Metsä Group's operations damage the terrain the company operates on. Figure 11 explains what harvestability maps are, how they were created and how widely they are used, but lacks information on what kinds of terrain damage Metsä Group's operations cause, how much terrain Metsä Group has damaged during the reporting period, what are the consequences of the terrain damage that Metsä Group has caused, and what happens e.g. if the ground is not frozen on a site where frozen ground would be desirable; will the harvest take place regardless in the operating year?

In addition to harvestability maps, Metsä Group (2018a) also explains how the company uses for example inverted mounding to minimize the company's environmental impacts, as can be seen from the following quote:

> *"We actively develop better and more sustainable forestry practices also to safeguard the biodiversity and to minimise our environmental impact: an example of this is inverted mounding, a soil preparation method developed by Metsä Group. Inverted mounding ensures good growing conditions for the seedlings, but also diminishes erosion and nutrient runoff into waterways compared to traditional methods"* (Metsä Group, 2018a: 18).

Again, the measure (inverted mounding) and its benefits are described to demonstrate how Metsä Group has taken action to minimize its environmental impact. Unlike Figure 11, the quote does provide at least some information on the negative impacts of the company's operations and soil damage, which seem to be related to biodiversity, erosion, and nutrient runoffs into waterways. However, at the same time the company is very taciturn about the problem it is solving.

How much erosion and nutrient runoff do the traditional methods cause? Has Metsä Group completely given up on the traditional methods or not? How much better is inverted mounding compared to the traditional methods? What kind of erosion and nutrient runoff impacts does the method of inverted mounding have (as the method seemingly diminishes the two, but does not eliminate them completely)? Why are erosion and nutrient runoffs undesirable in the first place and what consequences may they have on nature in general? What is Metsä Group's impact in all of this; the impact they are trying to minimize? The report does not provide answers to any of these questions.

Elsewhere in the report, Metsä Group (2018a) does, however, refer to minimizing soil damage as being "an essential factor regarding water protection in forestry operations" (p.34). Paraphrasing this statement slightly differently, apparently soil damage from forestry operations poses a considerable risk to waterways and water bodies. At the same time, both internal and external audits have found "damages to the forest floor [to be] the main issue for remarks" (Metsä Group, 2018a: 30) in Metsä Group's auditing results for the reporting year.

Naturally, it is only favorable that Metsä Group invests resources to solve these issues and attempts to minimize the negative impacts from the company's operations. Nevertheless, from a transparency point of view, how much can the various solutions be described in relation to the underlying problem – especially when terrain damage seems to be the main grievance of the audit results. The approach to address soil damage in the report could be described as unbalanced.

4.2.2.1.2. Biodiversity

The same notion could be argued to apply also with regards to biodiversity. In the report the word 'biodiversity' is consistently preceded by verbs such as 'safeguard', 'maintain', 'ensure', 'support', and 'protect' – implying threats or risks that need to be mitigated for the situation not to worsen. Metsä Group (2018a) also presents many measures it has taken to halt biodiversity loss from buffer zones to high biodiversity stumps and from research and guidelines to controlled burning. Nonetheless, the threats to biodiversity or the risks associated with biodiversity loss are not really discussed and the impact of Metsä

Group's own operations on biodiversity (the impact Metsä Group is attempting to minimize and because of which the company has taken all the described measures) is not really described quantitatively or qualitatively.

What could be described as an exception to this rule is when Metsä Group (2018a) states in relation to controlled burning of forests that "the habitats for the species depending on charred wood would almost disappear without this approach to active nature management in Finland" (p.34). The statement does not specify which species are referred to, what their role is in the ecosystem, or what the potential implications of their extinction could be, but at least the threat of their extinction is brought to the fore as potential a negative environmental impact due to human activities. Although, Metsä Group (2018a) refers to this phenomenon as a general side effect caused by firefighting and prevention of forest fires in Finland rather than something specific to Metsä Group's operations.

In other words, even though Metsä Group has a role in both preventing forest fires and practicing controlled burning, when Metsä Group (2018a) discloses this environmental risk associated with its operations in the report, it is presented in a way where the negative element (threat of extinction) is distanced from Metsä Group's operations. The negative element is described as a general issue in the society, whereas Metsä Group (2018a) associates its own actions and operations with the positive, i.e. controlled burning. This drives again the balance of information in the sustainability report towards positive.

The threat of extinction to the species dependent on charred wood could be described as the most explicit threat to biodiversity disclosed in the report. An example of more implicit disclosure of a threat to biodiversity would be how Metsä Group (2018a) discusses birdlife. In the report, Metsä Group (2018a) explains how it has created new guidelines for employees and contractors to take into consideration birds in harvesting and forest management.

Selection of harvesting locations while 'trying to avoid' harvesting activities during birds' nesting periods is identified as the most efficient method "to minimise the disturbance

during the nesting period" (Metsä Group, 2018a: 35). When harvesting is deemed necessary despite of the nesting period, Metsä Group (2018a) plans to the 'check the area' for nests and leave small buffer zones around the observed nests. These are some of the actions that Metsä Group intends to deploy in order to take birdlife into consideration in its operations and to promote biodiversity.

As Metsä Group (2018a) discloses information on how it considers birdlife as a part of its operations, the only piece of information that could be described to signal a threat towards birdlife, or towards biodiversity, is when Metsä Group (2018a) indicates that its harvesting activities could potentially pose a "disturbance" to birdlife, which is limited to the nesting period. From a global point of view, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has stated that "biodiversity – the diversity within species, between species and of ecosystems – is declining faster than at any time in human history" (IPBES, 2019: 10) and that "human actions threaten more species with global extinction now than ever before" (p.11). Locally, *The 2019 Red List of Finnish Species*, an extensive assessment commissioned by the Ministry of the Environment of Finland and the Finnish Environment Institute, found that a total of 2,666 native species are threatened (Hyvärinen et al., 2019). Moreover, changes in forest habitats due to the economic use of forests was found to be the primary reason for the endangerment of 733 species, or 27,5% of the endangered species (Hyvärinen et al., 2019). In addition, out of all the organism groups in Finland, *The 2019 Red List of Finnish Species* rates birds as the most threatened organism group (Hyvärinen et al., 2019).

Considering all of this, the question could be raised whether Metsä Group's sustainability report adequately depicts the severity of the state of birdlife and biodiversity. Phrasing the issue as "disturbance during the nesting period" (Metsä Group, 2018a: 35) makes it seem as if the issue was about controlling noise levels in order not to disturb the neighbors rather than demolishing the town's buildings. The focus on the actions that the company has taken to create positive impacts with little to no information on either the underlying problem nor the risks and negative impacts could be argued to serve to undermine the transparency of the reporting.

Metsä Group (2018a) acknowledges that nature management and habitat protection are important to safeguard biodiversity. However, considering the trends of declining biodiversity (IPBES, 2019; Hyvärinen et al., 2019) and increasing carbon emissions (IPCC, 2018) in the past decades, Metsä Group's (2018a) apparent keenness on increasing harvesting amounts could be seen to pose a threat to the environment. Consequently, developing measures to stop these trends before harvesting is increased would seem like a logical solution rather than attempting to develop the measures while or after increasing the harvesting amounts.

It is important to acknowledge that both t*he 2019 Red List of Finnish Species* and the report from IPBES were published after or around the same time as Metsä Group's sustainability report for 2018 was published. However, it would be astonishing if the company was oblivious to the issues highlighted in these reports considering for instance how tightly these issues are linked to the company's operations and how closely the company has undoubtedly collaborated with various stakeholders, including environmental NGOs.

4.2.2.1.3. Other implicit information

Besides soil damage and biodiversity loss, Metsä Group (2018a) may possibly have made other implicit information disclosures of negative environmental impacts in relation to some of its investment disclosures. Metsä Group (2018a) e.g. states regarding the Husum mill that "thanks to this investment and previous improvements, the mill is now able to run with at least 20% lower NOx emissions to air compared to year 2017 and meet the very strict requirements set in the mill's environmental permit" (p.44) as well as in relation to the Kemi pulp mill that "the investments are expected to reduce the particle emissions from the recovery boiler and ensure compliance with the mill's environmental permit limits" (p.45). These two excerpts from the report could be interpreted as Metsä Group having not been able to meet the environmental permit limits prior to these investments.

Again, it is positive information that these improvements have been made. However, the question for this examination relates to how balanced the disclosure is that Metsä Group

(2018a) has made. It may be that the machinery in place has initially met the permit requirements, then the permit limit has become stricter, which has triggered the need to make the investment.

It is fully understandable that larger investments require some preparation and resources before the change can be implemented. Nevertheless, if this has been the situation it would be more balanced and transparent to include this information. It could be argued that there is a difference between self-motivated desire to improve environmental performance and simply attempting to turn non-compliance into compliance. The latter is something that one could be expected to do and appropriate questions to ask in such situations would be whether it is acceptable to boast with such actions and how to present the situation transparently.

Naturally, the report is not completely detached from the wider societal context and the reader can also be expected to have some general knowledge about the world they live in as they start reading. However, how skewed can reporting be in terms of information balance on describing the positive impacts from the operations and to what extent should the underlying problems or issues be addressed? Can all the material information be said to be present in the sustainability report or could this approach to reporting inhibit the reader from seeing the forest from the trees? All the implicit information and the scatteredness of the explicit information in the report could be argued to make it more difficult to evaluate Metsä Group as an investment target based on environmental performance.

4.2.2.2. Choosing perspective

4.2.2.2.1. Biogenic vs. fossil CO2 emissions

An interesting choice of perspective can be found from Metsä Group's sustainability report regarding the disclosure of greenhouse gas emissions information. The chosen perspective could be seen to drive forward a quite positive view of the company's

performance on the topic. More specifically, Metsä Group (2018a) has made distinction between biogenic and fossil CO2 emissions, but places considerable emphasis on the latter.

The fact that Metsä Group (2018a) reports biogenic CO2 emissions information at mill level and alongside fossil CO2 emissions in the infographics and data tables of the sustainability report on page 39 and pages 58-61 could be described as highly transparent. This is because biogenic emissions have not often been calculated at an organizational or product level due to biogenic emissions having been seen as carbon neutral for a long time (Holtsmark, 2015; Liu et al., 2017). Only in recent years has this paradigm started to shift (Liu et al., 2017; Holtsmark, 2015).

Nevertheless, even though Metsä Group (2018a) has made the distinction between biogenic and fossil CO2 emissions, the focus on fossil CO2 emissions could be seen as such that the concept of biogenic CO2 emissions is not defined in Metsä Group's report, which may seem confusing to someone unfamiliar with the concept. According to IEA Bioenergy (n.d.), which is an organization associated with the International Energy Agency (IEA) that aims to improve dissemination of information on bioenergy between countries, biogenic CO2 emissions refer to carbon dioxide emissions released from burning biomass. Biogenic carbon dioxide differs from fossil-based carbon dioxide by being a part of a faster carbon cycle than fossil-based energy sources (IEA Bioenergy, n.d.). Whereas fossil fuels are part of a carbon cycle with a timespan from ten thousand to millions of years, vegetation's carbon cycle is between one to one hundred years and soil carbon's carbon cycle takes from ten to five hundred years to complete a full cycle (IEA Bioenergy, n.d.).

The distinction Metsä Group (2018a) makes between biogenic and fossil CO2 emissions in terms of emphasis becomes apparent from how Metsä Group (2018a) simply refers to 'fossil CO2 emissions', 'fossil-based CO2 emissions', 'fossil carbon dioxide' or 'fossil greenhouse gas emissions' in the report except for page 63, where the coefficient for calculating biogenic CO2 emissions is presented. A good example of the emphasis on

fossil emissions is when under the heading of '*minimising emissions to air*' Metsä Group (2018a) refers only to the fossil CO2 emissions from its operations as can be seen in the following quote:

"*Our direct greenhouse gas emissions (Scope 1) were 694,000 (747,000) tonnes of fossil carbon-dioxide (CO2). Fossil greenhouse gas emissions from the consumption of purchased electricity and heat (Scope 2) calculated with a market-based method were 574,000 (727,000) tonnes and 496,000 (666,000) tonnes when calculated with a location-based method. Emissions of fossil CO2 have decreased by 45% (38) per product tonne since 2009*" (p.44 – formatting added)

The quote above and the section of the sustainability report where the quote is from seem to disregard the biogenic CO2 emissions that are released from Metsä Group's operations. Why this could be described as problematic from sustainability reporting transparency's point of view is that based on the above quote, a reader of Metsä Group's sustainability report could be mistaken to believe that these figures represent the total of Metsä Group's carbon emissions.

Figure 12: Metsä Group's emissions to air (p.39).

However, as can be seen from Figure 12 adapted from the infographic on page 39 in Metsä Group's sustainability report, Metsä Group's (2018a) biogenic carbon dioxide emissions can be seen to mount to over nine million tonnes – with an increase of over one million tonnes from 7,771,000 tonnes in the previous year. In the same infographic, Metsä Group's (2018a) fossil carbon dioxide emission can be seen to total 693,900 tonnes – down from 746,800 tonnes the previous year – which is slightly less than 8% of the amount of Metsä Group's (2018a) biogenic CO2 emissions. When added together, Metsä Group's total CO2 emissions for the year of 2018 are approximately 9.73 million tonnes of CO2, whereas in the previous year they were ~ 8.52 million tonnes – resulting in an increase of approximately 1.2 million tonnes of CO2 in the atmosphere within one year.

With these numbers and because Metsä Group's (2018a) disclosures revolve notably one-sidedly around fossil CO2 emissions, it seems that Metsä Group's ambition in reducing greenhouse gas emissions lies solely on fossil CO2 emissions. This impression is further strengthened by Metsä Group's (2018a) statement regarding airborne emissions, where the company indicates "the common aim [to be] to continuously reduce fossil CO2 emissions" (p.44 – formatting added). Interestingly, though, Metsä Group (2018a) does not seem to explicitly claim the biogenic CO2 emissions to be carbon neutral.

4.2.2.2.2. Certified vs. controlled wood origin

Another topic on which cropping, and slightly limited transparency, could be observed in the sustainability report deals with the origin of wood used and procured as a part of Metsä Group's operations. Although, whereas in relation to CO2 emissions the cropping could be seen to involve a strong focus on a section of a larger whole (fossil CO2 emissions vs. all CO2 emissions), with wood origin there could be described to be an expanded perspective present in the report. Metsä Group (2018a) has noted that "interest towards wood origin and forestry has been more active in the past year due to the climate change discussion and utilisation of the forests as a renewable raw material" (p.20).

To address this interest, Metsä Group (2018a) states that 100% of its wood is sustainable and traceable, because it is sourced from either certified or controlled sources. More specifically Metsä Group (2018a) identifies that 88% of its wood is sourced from certified

forests, which means that 12%, or almost 4.4 million cubic meters of wood, came from controlled sources. Unfortunately, however, the term 'biogenic' does not seem to be the only term that has not been explained in the report as Metsä Group (2018a) does not specify in the report what 'controlled' means in practice, or what the difference is between a controlled forest and a certified forest. Nonetheless, the claim that 100% of the wood is sustainable and traceable could be seen to drive the balance of information in the report towards positive.

4.2.2.3. Explicit explanations of negative impacts

With regards to the scope of the sustainability report, Metsä Group (2018a) states that it has addressed in the report all "major permit violations, claims, compensations and topics related to the Group that have gained public attention or may have caused a reputation risk in environmental or human resource management, or ethical business practices" (p.63). Several explicit disclosures of negative incidents and impacts were identified from the environmental performance perspective in the report. The following two quotes from the sustainability report exemplify how Metsä Group (2018a) disclosed information on malodorous gases emitted from its operations:

"*Normally our emissions do not cause any noticeable environmental impacts. However, the odorous Sulphur compounds are challenging to control and therefore some occasional odours can still be noticed around pulp mills*" (Metsä Group, 2018a: 44).

"*Our emissions to air causing acidification (SO2, NOx) were reduced in 2018. Emissions of particles reduced by 26% (increased by 14%) and odorous compounds (TRS) increased by 31% (reduced by 9%)*" (Metsä Group, 2018a: 44).

Possibly the clearest and most explicit disclosures regarding negative environmental impacts from Metsä Group's operations are presented in the environmental incidents and liabilities section of the sustainability report. The section compiles together all incidents

involving environmental permit violations in Metsä Group's operations during the reporting year. On page 46 of the report, Metsä Group (2018a) states the following:

"*There were no environmental incidents in the reporting year. There were eight clear permit limit violations and five minor, momentary non-compliances. We are committed to a high environmental performance and each case is investigated carefully for corrective actions. All permit limit violations are described in annex table on the page 62*" (Metsä Group, 2018a: 46).

Adding together the eight clear permit limit violations and five minor, momentary non-compliances there seems to have been thirteen breaches of environmental permit limits altogether. The annex regarding the permit limit violations is presented in Figure 13.

ENVIRONMENTAL INCIDENTS AND LIABILITIES

In the reporting year, there were no incidents at the mills that would have caused significant environmental impacts, and that would have been followed by claims, compensations or significant media coverage.

All incidents that have caused violations of monthly, quarterly or annual permit limit values are detailed with description and corrective actions in the table below. In addition, minor and momentary environmental permit violations with no perceptible environmental effects were reported at Husum, Kemi, Kreuzau, Rauma and Simpele mills. The authorities have been informed and corrective actions have been taken in all cases.

The Svir sawmill in Russia paid EUR 1,260 as fiscal levy related to water discharges and waste handling.

Business Area	Unit	Incident	Corrective actions
Metsä Fibre	Joutseno mill, Finland	Particle emissions to air from the lime kiln exceeded the permit limit in annual measurements and problems continued throughout the year.	The operation of the lime kiln, electrostatic precipitators and fuels used have been investigated. However, the reason for the elevated emission level has not been completely identified and the situation remains unstable.
	Rauma mill, Finland	The monthly permit limit for COD emissions from the joint effluent treatment plant of Rauma integrate was exceeded in October.	The COD loading and operation of the plant was stabilized and emissions have returned to normal level.
	Äänekoski mill, Finland	The monthly permit limit for total suspended solids emissions to water was exceeded in March and May due to poorly settling sludge from the biological treatment stage.	The operation of the plant was stabilized with several actions and emissions have returned to normal level.
Metsä Board	Husum mill, Sweden	Particle emissions to air from the lime kiln exceeded the annual permit limit due to technical problems at the flue gas treatment system.	Maintenance and technical improvements were made at the flue gas treatment and emissions have returned to normal level.
	Kaskinen mill, Finland	The permit limit for nitrogen oxide (NOx) emissions to air from the power plant was exceeded in February.	Leaks in the power plants flue gas system were fixed during a maintenance break and air-staging in the boiler was changed. Emissions have returned to normal level.
Metsä Tissue	Mänttä mill, Finland	The monthly permit limit for total nitrogen emissions to water was exceeded in August and COD/BOD in October.	The operation of the effluent treatment plant was stabilized and emissions have returned to normal level.
	Nyboholm mill, Sweden	The permit limit for total suspended solids emissions to water was exceeded in the first quarter of the year. Permit limit for total phosphorous was exceeded in December due to excess amount of process cleaning agent entering the treatment plant.	Mechanical problems at the treatment plant were fixed yearly in the year and operation of the plant has been stabilized after the phosphorous discharge. Emissions have returned to normal level.
Metsä Wood	Punkaharju mill, Finland	The permit limit for COD emissions to watercourse were exceeded in the first quarter of the year.	Maintenance and clean-up work was carried out at the treatment plant to improve its performance. Emissions have returned to normal level.

Figure 13: Metsä Group's annex on environmental incidents and liabilities (p.62)

The annex presented in Figure 13 does not seem to specifically differentiate between the eight clear permit violations and five minor, momentary non-compliances in a manner that would be clear to someone not familiar with the permit regulations. There seems to be a total of eleven permit limit breaches at eight mills in the table. In addition, above the table in Figure 13 Metsä Group (2018a) specifies three mills, where "minor and momentary environmental permit violations" (p.62) were observed. Altogether, with the eleven incidents identified in the table and three incidents identified outside of the table (assuming one incident per mill) it seems that a total of fourteen environmental permit limit breaches took place during the reporting year.

This is one breach more than what Metsä Group (2018a) disclosed on page 46 of the report. As to why the numbers are different, the reason is not obvious. Most likely reasons for the difference could potentially be a human error in reporting or if Metsä Group (2018a) for example counted the incidents at Äänekoski mill as one.

However, if the problem experienced at Äänekoski mill in March was overcome and in April the emission levels were found to reside within the permit limits, is it then possible to bundle the incident in March together with the incident in May? Without more detailed information present in the report it is challenging to make definitive conclusions. Nevertheless, lack of information and transparency could be argued to be the driving force behind this ambiguity.

As previously mentioned, the annex does not seem to differentiate on which 'incidents' in the table constitute a clear permit limit violation or a minor, momentary non-compliance. Moreover, there is no explicit definition for what constitutes one 'case'. A factor that could be seen to significantly influence the ambiguity of this section of the report is that the third column of the table in Figure 13 seems to present a total of eleven permit limit breaches that are categorized as 'incidents', even though on page 46 of the report Metsä Group (2018a) stated that "there were no environmental incidents in the reporting year".

The contradiction is rather striking and presents a question of why Metsä Group (2018a) made the distinction between incidents, clear permit violations and minor, momentary non-compliances on page 46, if there are only incidents in the annex table? Above the table in Figure 13 Metsä Group (2018a) explains how the reporting year did not contain environmental impacts at the mill sites that would have led to significant media coverage, court cases or monetary penalties. Consequently, it could be assumed that this was what Metsä Group (2018a) was referring to on page 46 with the claim of there being no environmental incidents.

Nevertheless, now it seems that one possible interpretation could essentially even be that the statement on page 46 is false and that environmental incidents have taken place. As for the motive to make the statement and the distinction between incidents, violations, and non-compliances, it could be an attempt to downplay the environmental impacts from Metsä Group's operations or then the word 'incident' was used erroneously in a wrong place. Either way, or whatever the circumstances have been, this statement and the distinction could be seen to drive the balance between positive and negative information in the report toward positive.

Another interesting aspect with regards to the annex on environmental incidents is that Metsä Group (2018a) does not describe the actual environmental impacts of the incidents in any way. After all, the fact that Metsä Group (2018a) specifies three incidents outside of the table within Figure 13 to have been violations "with no perceptible environmental effects" (p.62), could be interpreted as that the other eleven incidents within the table did have perceptible environmental effects. However, instead of describing the perceived effects, Metsä Group (2018a) simply identifies which permit limits have been breached, when and for how long.

There is no indication of what these permit limit breaches cause or contribute towards in the environment. This could be argued to leave the negative environmental impacts of the company's operations somewhat unclear for many readers who are not intimately familiar with how these emissions affect ecosystems. Withholding the information on the

environmental effects that the company has perceived could additionally be seen to restrict transparency.

Moreover, Metsä Group (2018a) does not specify by how much the permit limits have been breached. All that the readers know is that eight permit limit violations were 'clear' and five were 'minor', but the table in Figure 13 does not even specify which of the reported incidents were clear and which were minor. In the 'corrective actions' column of the table Metsä Group (2018a) then only states that "emissions have returned to normal level" (p.62) if this has been the case.

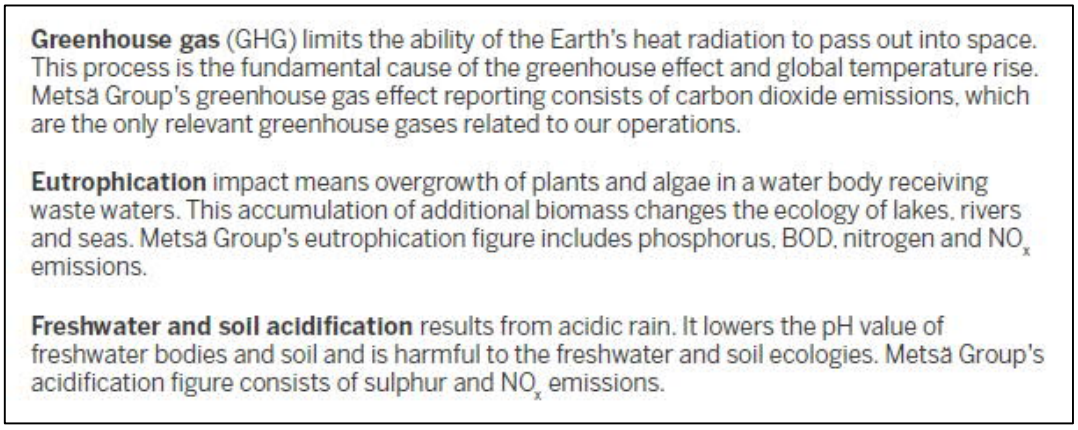
Notably, at the Joutseno mill the permit breaches appear to have persisted for a year and the problem has not been completely solved as Metsä Group (2018a) states that "the situation remains unstable" (p.62). Moreover, even though the emission level has been corrected to a normal level, this kind of action only stops the harmful effect from exceeding the permit limitation from continuing. It does not address the harmful effect that has taken place during the time period when the permit limit was exceeded.

Since there is no description of the perceived environmental impact from the exceeded permit limit, it cannot be concluded from the report whether something should or could have been done in order to mitigate or neutralize the harmful environmental impact caused by the exceeded permit limit. Based on Figure 13, however, no action has been taken to address the created impact and the corrective action has only focused on preventing the impact from becoming greater.

Finally, another explicit acknowledgement of a per se negative impact from its operations made by Metsä Group (2018a) is that its operations warm watercourses and a small part of the used water evaporates in the process. Albeit, these impacts do not appear to be harmful to the environment as Metsä Group (2018a) operates only in areas with abundance of water resources.

4.2.2.4. Generalization of negative impacts

A noticeable pattern in relation to the explicit disclosure of negative environmental impacts in Metsä Group's sustainability report is that the potential or realized negative impacts are discussed on a general level in various sections of the report. A good example of this would be how Metsä Group (2018a) has commendably explained some of the more challenging terminology associated with key environmental impacts in the industry in Figure 14.



Greenhouse gas (GHG) limits the ability of the Earth's heat radiation to pass out into space. This process is the fundamental cause of the greenhouse effect and global temperature rise. Metsä Group's greenhouse gas effect reporting consists of carbon dioxide emissions, which are the only relevant greenhouse gases related to our operations.

Eutrophication impact means overgrowth of plants and algae in a water body receiving waste waters. This accumulation of additional biomass changes the ecology of lakes, rivers and seas. Metsä Group's eutrophication figure includes phosphorus, BOD, nitrogen and NO_x emissions.

Freshwater and soil acidification results from acidic rain. It lowers the pH value of freshwater bodies and soil and is harmful to the freshwater and soil ecologies. Metsä Group's acidification figure consists of sulphur and NO_x emissions.

Figure 14: An information box explaining terminology related to environmental performance (p.47)

In Figure 14 Metsä Group (2018a) briefly explains the concepts of greenhouse gases, eutrophication as well as freshwater and soil acidification. Notably there is also a clarification of what Metsä Group's calculations consist of for each concept. All of this could be seen to enhance the transparency of Metsä Group's reporting.

On the other hand, the threats and risks associated with these concepts are not explained. In relation to greenhouse gases, there is no indication of what global temperature rise can lead to. With regards to eutrophication the changes that the phenomenon causes to lakes, rivers and seas have not been identified.

Metsä Group (2018a) can be seen to be the most forthright with regards to acidification, when the company states clearly that acidification is harmful for freshwater bodies and soil. However, here as well, there is no sign of what outcomes the low pH values may or will result in. Metsä Group (2018a) has made significant progress in reducing its total acidification effect over the years, but there is no indication of how significant the remaining portion is to the environment, and on the other hand the achieved improvement could be made more tangible. Consequently, both the potential negative environmental impact from the company's operations and the impact of the achieved performance improvement may remain unclear for many readers of the report – with the former driving the balance of information towards positive.

4.2.2.5. Visual elements enhance positive image

Another factor in Metsä Group's sustainability report that could be seen to affect the balance between positive and negative information are some of the visual elements in the report, such as charts. Some of the charts lack specific data and are difficult to read because of their scale or size. Figure 15 below provides an example of this.

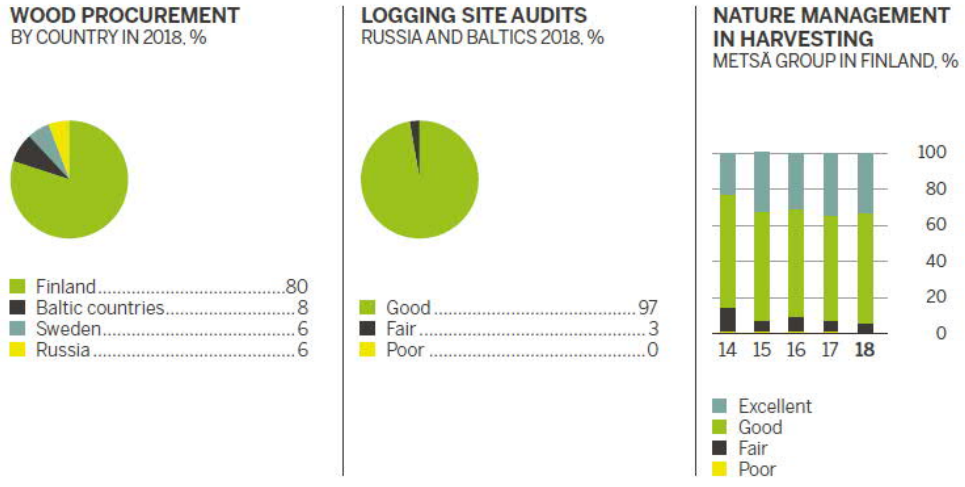


Figure 15: Various illustrations in Metsä Group's sustainability report (p.31).

Figure 15 presents three different illustrations regarding Metsä Group's operations; a pie chart about Metsä Group's wood procurement by country, a pie chart about logging site audits in Russia and the Baltics, and a stacked column chart about nature management in harvesting in Finland. All three illustrations are rather small in terms of size. However, whereas the proportions of the two pie charts' categories are easy to read because of the provided data labels, the stacked column chart omits the data labels, which makes the chart considerably more difficult to read.

On face value it can be seen from the stacked column chart that most of the received evaluations are either 'excellent' or 'good', but the details are unclear. Moreover, albeit the pie charts indicate the distribution of cases across the categories, they do not e.g. signal the total number of logging site audits or how many hectares of forest the audits covered. Another set of examples can be found in Figure 16 below.

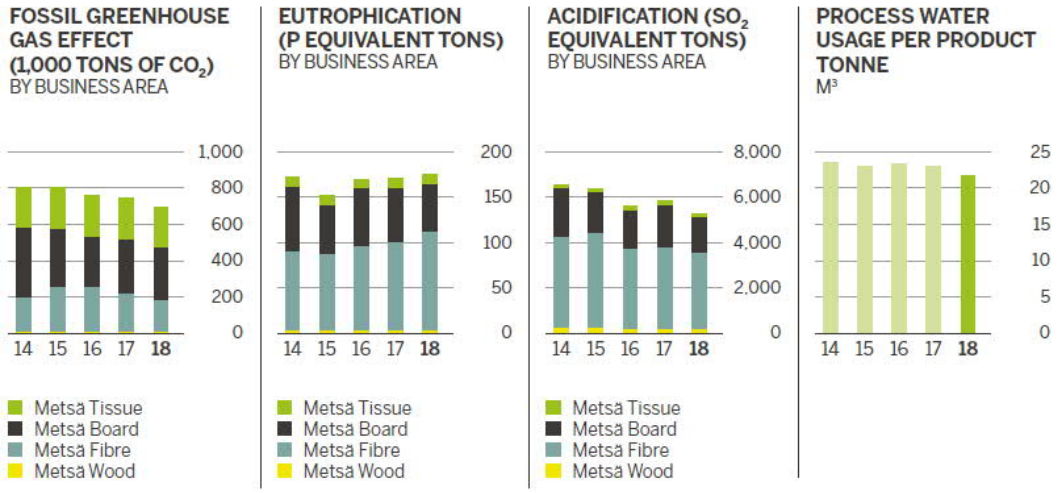


Figure 16: Charts about Metsä Group's environmental impact indicators (p.47).

There are four charts in Figure 16 that depict various aspects of Metsä Group's environmental performance. The charts provide information on fossil greenhouse gas effect, eutrophication, acidification, and process water usage per product tonne. All four

charts could be described to indicate an approximate level of the given indicator over the past five years and potential trends.

However, due to the small size of the charts, the selected scales and lack of data labels, the transparency and informativeness of the charts could be argued to suffer. The charts that depict fossil greenhouse gas effect and acidification show a positive, slightly downward trend, whereas the charts for process water usage per product tonne and eutrophication indicate a rather unchanged performance levels over the years, albeit the last column in the chart for process water usage per product tonne is visibly lower than the previous years. On the other hand, eutrophication seems to even have reached an all-time high on the data range; meaning that Metsä Group's environmental impact on this indicator is the most negative it has been so far.

However, due to the aforementioned factors regarding size, scale and data labels of the charts, this fact is more difficult to spot. Altogether the employed visual cues could be argued to shift the balance of information towards positive and aid the formation of an overall positive impression on the company's operations for the reader. The reason for this would be that at a glance there does not seem to be any deteriorated environmental performance, but only improvements or seemingly no change.

4.2.2.6. Use of parenthesis

When disclosing quantitative information in its report, Metsä Group (2018a) utilized the parenthesis method to indicate last reporting period's results within the parenthesis after disclosing this reporting period's results. This method was not overly prevalent in the report, but worthy of note in this section of the thesis, because this method was used to convey a significant amount of 'negative' information related to decreased performance levels. Instead of explicitly stating that performance on a given indicator had worsened from the environment's point of view compared to the last reporting period, this often became apparent via the parenthesis. Although, the method was used consistently to disclose quantitative information and often indicated improved performance. Examples

of the use of parenthesis can be found in Figure 12 presented previously and in Figure 17 below.

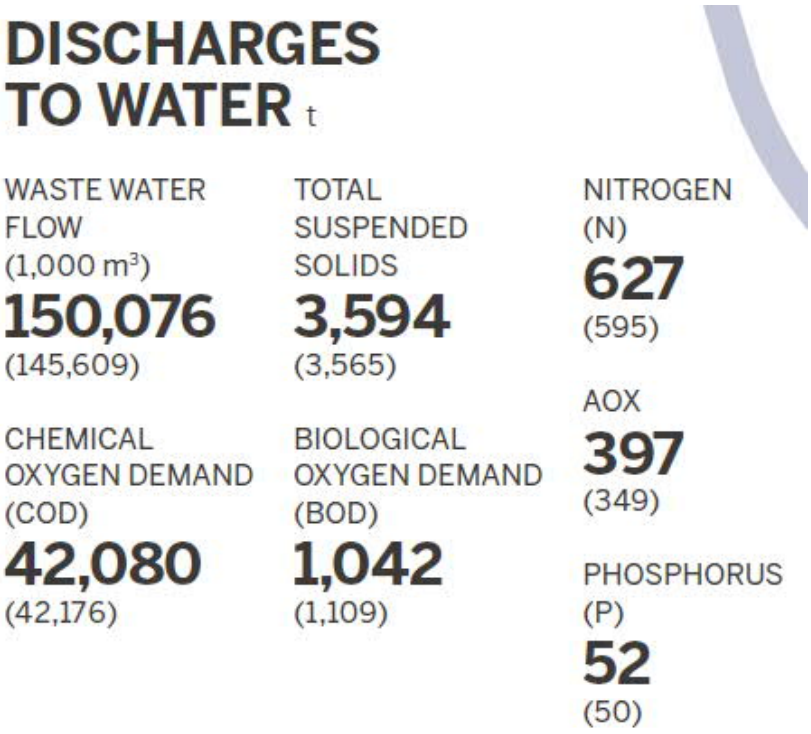


Figure 17: Metsä Group's environmental performance figures adapted from the infographic on page 39.

4.2.3. UPM

An examination of UPM's Annual Report for the balance between positive and negative information lead to the discovery of several sub-themes, or patterns, within the annual report that could be seen to drive the balance of information overwhelmingly towards positive. More specifically, UPM's report is filled with numerous notations towards how responsibility is embedded into the company's operations, the company's year 2030 performance targets as well as awards and recognitions the company has claimed. Furthermore, UPM (2018a) makes countless references towards continuous improvement and product innovations for circular economy as well as various collaboration projects

and production site investments geared towards improvement in environmental performance.

Based on the report, UPM seems to have great awareness of environmental issues and positive results to show for the work that has been done. However, a major contributing factor to this skewed balance towards positive information was also the lack of information on UPM's negative environmental performance and impacts in the report. The following data extracts from the report exhibit why the overall information balance of the annual report could be seen to skew towards positive:

"*2018 was a record year for UPM. While the uncertainties in the global economy increased towards the end of the year, we delivered excellent results and achieved our 23rd consecutive quarter of earnings growth*" (UPM, 2018a: 9).

"*We are building a more sustainable future by replacing oil-based and other non-renewable materials with renewable energy alternatives, by using them efficiently and creating entirely new kinds of products and services*" (UPM, 2018a: 9)

"*In 2018, UPM was again named a Global Compact LEAD company for its commitment to the UN Global Compact. We were one of only 34 global companies to receive this recognition, and the only representative of the forest industry and Finland*" (UPM, 2018a: 24)

"*Industry leader in sustainability and product safety*" (UPM, 2018a: 38)

"*Recognized and awarded industry leader in sustainability*" (UPM, 2018a: 40)

"*Clear and transparent sustainability agenda based on responsible operations, strong ethical values and a fully traceable supply chain*" (UPM, 2018a: 42)

"*As a result of the energy-saving investments carried out in 2018, UPM reduced its energy costs by EUR 3.2 (3.0) million, avoided 23,000 (39,000) tonnes of CO2 emissions and achieved a 95,000 (92,000) MWh reduction in energy consumption. The annual savings were EUR 4.1 (5.1) million, 28,000 (61,000) t of CO2 and 118,000 (143,000) MWh*" (UPM, 2018a: 74)

"*Corporate responsibility is an integral part of all of our operations and a source of competitive advantage. UPM is committed to continuous improvement in financial, social and environmental performance. UPM promotes responsible practices throughout the value chain and is active in finding sustainable solutions, in co-operation with its customers, suppliers and partners*" (UPM, 2018a: 99)

"*Majority of UPM's products are made from renewable materials and are recyclable*" (UPM, 2018a: 111)

To a significant extent the lack of negative information can be contributed to the progress and environmental achievements that UPM has made over the years. However, UPM (2018a) is notably taciturn on the negative aspects of its operations that the company acknowledges to have taken place. Next, the ways in which UPM (2018a) discloses information on the negative environmental impacts and performance in its report.

4.2.3.1. Explicit explanation of negative impacts

UPM (2018a) does not seem to make many explicitly negative comments with regards to its operations or its environmental performance. The most obvious negative information disclosures in the report deal with environmental deviations. Even though it is positive to see that the number of deviations has been decreasing for many years, the 26 deviations that took place (UPM, 2018a) represent negative impacts on the environment. With the term 'deviations', UPM (2018a) refers to "temporary deviations from permit limits or

environmental limits set by UPM occurred at the mills over the course of the year" (p. 71).

These "deviations were related to minor contraventions of air and water emission limits, or occasional odours from pulp mills" (UPM, 2018a: 71). However, this is as much detail as UPM (2018a) is willing to provide with regards to the deviations. The company does not identify which permit limits were breached and for how long or to what extent.

There is also no information in the report on what the 'environmental limits set by UPM' are or what is the proportion of permit limit breaches versus UPM's own environmental limits in the reported deviations. UPM (2018a) indicates that the company has reported all deviations to the authorities and other relevant stakeholders as well as taken "appropriate measures … to normalise the situation and prevent similar occurrences" (p. 71). Furthermore, UPM (2018a) states that "all sites systematically follow-up any deviations, proactively report observations and near-misses, carry out walks and discussions, and compile detailed risk assessments" (ibid).

It is apparent that once a permit limit has been breached, UPM has strived to stop operations from continuing to violate the permit limit by taking corrective action to normalize the situation. What does not become apparent is the impact caused by the exceeded permit limit. There is also no information on whether something has, should or could have been done to compensate the breach of the permit limit to the environment.

To accompany the 26 deviations, UPM (2018a) also reports 2,400 preventive environmental observations and near-misses in 2018. In a sense, it could be seen as negative information that the number of near-misses has been this large for the reporting year due to the risk of deviations or incidents that the near-misses pose, but the fact that the negative impact was prevented or did not happen in the end is naturally positive.

Besides environmental deviations, it seems that there is virtually only other explicit disclosure of negative information in UPM's report. Although, whereas the

environmental deviations dealt with a negative impact on the environment, this piece of negative information is associated with the company's negative environmental performance in the sense of not being able to attain its targets. More specifically, UPM (2018) states that it "did not reach its annual energy efficiency target of 1% in 2018" (p. 74).

The way in which this piece of information was disclosed was that the negative statement was sandwiched between two positive statements. First, UPM (2018a) noted how "electricity consumption per tonne of paper has decreased by 4% over the past ten years" (p. 74). Then the company made the acknowledgement of the failure to reach the performance target.

Finally, UPM illustrated the progress it had made with regards to energy efficiency during the calendar year despite of not reaching the target. Altogether, this account on the failure to reach the energy efficiency target is similarly taciturn as the account on the environmental deviations. UPM (2018a) briefly acknowledges the fact and no further or more detailed information is provided e.g. as to why the target was not met or how much UPM fell short of the target.

4.2.3.2. Choosing perspective

4.2.3.2.1. Certified vs. controlled wood origin

While examining how UPM (2018a) discloses negative information, the thesis noted how there was a noteworthy decline on the indicator for 'certified fibre', which had decreased from 85% in 2017 to 81% in 2018, while UPM's aims to have "all fibre certified by 2030" (p.27). The decline on this environmental performance target was disclosed using the parenthesis method: "81% (85%) of all wood used by UPM is sourced from certified forests" (p.27) in 2018. There does not seem to be virtually any explicit explanation due to what circumstances the share of certified fibre decreased in 2018, albeit UPM's (2018a) goal is to use 100% certified fibre in its operations.

Nonetheless, in addition to the taciturn way this negative information was disclosed, the share of certified fibre became a particularly interesting observation for the thesis because of the broader lack of transparency that seems to surround this indicator. Due to limited explanation of the used terminology and because the associated information is spread on several pages, it is not completely clear what this indicator refers to exactly. Part of this confusion could be argued to be due to what seems to be the main message from UPM's (2018a) reporting on wood origin, i.e. that "all wood [comes] from sustainable sources" (p.32).

The following quotes illustrate how UPM (2018a) explains at length how all wood used in its operations come from sustainable sources:

"*All UPM's wood, pulp and recovered paper suppliers are continuously evaluated in regard to environmental issues, social responsibility and the local community. These raw materials are either FSC and PEFC certified or comply with the FSC Controlled Wood standard and Due Diligence requirements for PEFC*" (UPM, 2018a: 60).

""*All the wood used to produce UPM products is legally logged and comes from sustainably managed forests. UPM does not use wood harvested from tropical rainforests or accept wood from plantations that have been established by destroying natural forests. UPM does not accept wood from regions that do not respect the rights of indigenous peoples*" (UPM, 2018a: 61).

All of UPM's wood supplies are covered by third-party-verified, FSC and PEFC certified chains of custody" (UPM, 2018a: 61).

"*Wood supply from controlled sources 100%*" (UPM, 2018a: 68).

"*Third-party verified chain of custody systems to ensure 100% traceability of wood*" (UPM, 2018a: 68).

"*All UPM-owned forests are certified*" (UPM, 2018a: 69).

The recurring tags associated with all these sentences are "*all*" and "*100%*". However, at the same time UPM (2018a) states that "81% of wood consumed in our mills was sourced from certified forests in 2018 and all wood sourced by UPM is FSC Controlled Wood and from PEFC Controlled Sources" (p.69). The key to the perceived ambiguity with regards to wood origin and the seeming contradiction between claims of 81% certified fibre and all wood coming from sustainable sources seems to lie in the concepts 'certified' vs 'controlled'.

But why is UPM's target to have 100% certified fibre, if all wood already comes from sustainably managed forests and everything is already sustainable as the report makes it seem? Somehow, certified wood seems to be inherently better than controlled, but the exact difference(s) between the two types of wood is not explained. Instead, UPM (2018a) seems to bundle everything together under the label 'sustainable'.

However, the claim that all of UPM's wood comes from sustainable sources seems to be one key message within the report. Since the claim is achieved by sourcing almost 20% of the wood from 'controlled' rather than certified sources, it could be argued that UPM should explain the difference to be more transparent on the matter. After all, considering the size of UPM's operations, approximately one fifth of sourced wood represents *millions* of cubic meters of wood, or 'fibre', that is not certified, but something else.

4.2.3.2.2. Biogenic vs. Fossil CO2 emissions

Based on the available information, in 2018 UPM seems to have made positive progress towards its fossil CO2 emission targets in the reported CO2 emission categories (UPM, 2018a). Nevertheless, from an environmental performance point of view, what could be seen as negative information with regards to the reported CO2 emissions in the sustainability report is the fact that UPM (2018a) decided to sell its greenhouse gas claims, which the thesis assumes to be a similar instrument to carbon credits. In the big picture these greenhouse gas claims are intended to reduce the amount of greenhouse

gases emitted to the atmosphere by creating a limit of how much emissions are allowed free-of-charge in a given time period and then reducing this limit as time goes on.

The idea is to incentivize companies to reduce greenhouse gas emissions by making the emission of greenhouse gases above a certain limit cost money. In this market-based mechanism it is possible to sell and buy the greenhouse gas claims according to one's needs. For the reporting year, UPM apparently did not see the need to use the claims for its own operations and chose to sell the claims to make more money.

However, since UPM did not see the need to use the GHG claims for its own operations, the company could also have opted to invalidate the greenhouse gas claims and keep them off the market as unused. Alternatively, UPM could at least have sold the claims to a party that would invalidate them in a bid to fight against global warming. However, with the decision to sell, UPM could be seen to have missed this opportunity to make a positive contribution to prevent global warming.

Instead, short-term personal gain was placed before the long-term common good, even though UPM would have most likely declared a handsome profit even without the sale of the greenhouse gas claims. The tradeoff for this marginal financial gain was an environmental loss that could be argued to make UPM's commitment and ambition to combat global warming slightly questionable. This could especially be argued to be the case since one of UPM's (2018a) 'environmental' targets seems to be to "maximize the business benefits of greenhouse gas claims (continuous)" (p. 27). In fact, should this kind of a target even be classified as 'environmental' rather than financial, if the action essentially causes environmentally harmful emissions and produces financial gain?

Interestingly, how the information is presented causes the sale of the greenhouse gas claims almost seem purely positive information. In the report UPM (2018a) acknowledges that "without sales of greenhouse gas claims of energy used by UPM, the reported emissions (Scope 1 and 2) would have been over 7% lower" (p.27) compared to last year's total. With the sale of the GHG claims, UPM's "fossil CO2 emissions reduced

by 4% compared to 2017" (UPM, 2018a: 27). In other words, it seems that UPM sold greenhouse gas claims equivalent to over 3% of the company's combined annual scope 1 and 2 carbon emissions, which enabled the buyer of the claims to emit this amount of CO2 into the atmosphere.

Overall, UPM (2018a) states the amount of emissions from the sale of the greenhouse gas claims to be in the region of "nearly 1.1 million CO2 tonnes" (p.27). This amount of CO2 emissions is not insignificant as it is equivalent to e.g. the annual carbon footprint of approximately 105,000 Finns (Sitra, 2018). With an average passenger car used in Finland that emits 155.4 grams of CO2e per kilometer (Liikennefakta.fi, 2020), one could drive over 175,000 laps around planet Earth in slightly over 10,100 years with a speed of 80km/h and without pitstops.

A remarkable number of events could be argued to have taken place in the past 2020 years; the Dark Ages, Renaissance, World Wars, etc., and the time spent driving to create the same amount of carbon dioxide that UPM decided to sell in 2018 for someone to use (probably in less than a year) is approximately five times the amount of time from the start of the Christian era until today.

Furthermore, there seems to be slight opacity with regards to amount of the total annual carbon footprint from UPM's operations in the Annual Report in the sense that UPM (2018a) does not explicitly disclose its total annual carbon footprint (scope 1, 2 and 3 emissions) in the Annual Report, but does this in a separate document called '*UPM Greenhouse Gas Inventory 2018*', which UPM has published outside of the Annual Report as a part of its sustainability reporting. In the Annual Report, UPM (2018a) seems to not only focus on scope 1 and 2 emissions but also on fossil scope 1 and 2 emissions specifically. This is exemplified by UPM's environmental target to have "fossil CO2 emissions from its own combustion and purchased electricity (Scope 1 and 2) reduced by 30% by 2030" (UPM, 2018a: 27 – formatting added).

Furthermore, the way in which UPM (2018a) discloses the information with regards to the sold greenhouse gas claims could be slightly confusing as there is no indication as to what greenhouse gas claims the company is referring to. The way in which the information on the sold greenhouse gas claims is presented in the table on page 27 of the Annual Report could also be seen to signify that the sold GHG claims worth ~1.1 million CO2 tonnes represents approximately 3% of UPM's annual scope 1 and 2 emissions, in which case UPM's total CO2 emissions for scope 1 and 2 should be around 36.66 million tonnes of CO2 per annum. However, the CO2 emission amounts presented later in the report and on the separate document are vastly different from this number. For instance, based on Figure 18 below, UPM (2018a) seems to indicate that its annual fossil carbon dioxide emissions are somewhere around 6 million tonnes of CO2 for the reporting year.

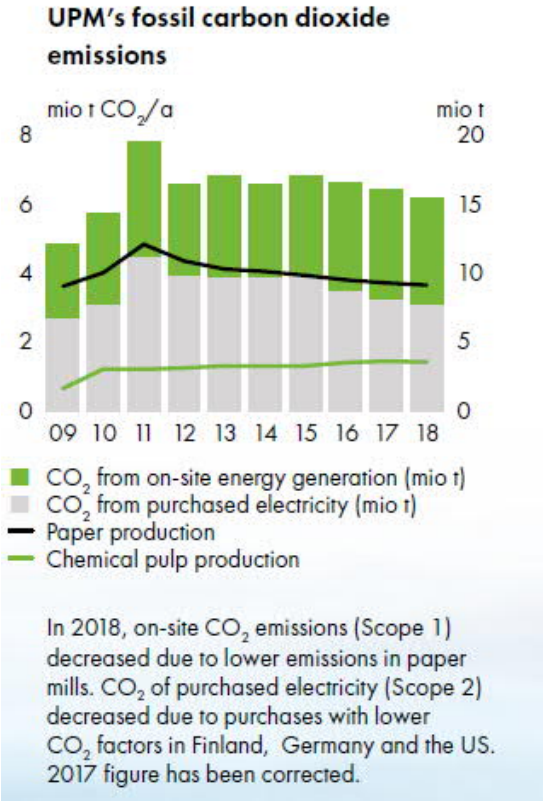


Figure 18: UPM's fossil carbon dioxide emissions graphic (p.75)

The 6 million tonnes of CO2 emissions presented in Figure 18 is only a fraction of the 36.66 million tonnes of CO2 that could be calculated based on what UPM (2018a) reported as the worth of its sold greenhouse gas claims. However, this also is not the only discrepancy arising from UPM's CO2 reporting. As can be seen from Figure 19 below, UPM (2018a) states that its "fossil CO2 emissions (scope 1)" stand at 3.0 million tonnes of CO2, "fossil CO2 emissions (scope 2 & 3 upstream)" to be equivalent to 6.7 million tonnes of CO2, and "fossil CO2 emissions (scope 3 downstream) to be 3.5 million tonnes of CO2.

Put together, all these explicit fossil CO2 emission categories (scopes 1, 2, and 3) from Figure 19 amount to 13.2 million tonnes of CO2 in total. However, in the separate GHG inventory document, UPM (2019a) quotes its fossil CO2 emissions from scope 1 at 3,25 million, from scope 2 at 3,1 or 3 million depending on the calculation method, and from scope 3 at 7,1 million, which totals 13,35 or 13,45 million tonnes of CO2. Albeit the discrepancy is not large as the difference appears to be decimals, it seems that in the "Summary of our societal impacts" -graphic in Figure 19 some of UPM's annual fossil CO2 emissions seem to have faded away.

This could be for example due to human error or because part of the fossil CO2 emissions from scopes 1 and 2 may have faded into the categories under the "energy" headline in the "direct upstream" box of Figure 19. Nevertheless, this could be argued to be unfortunate from the point of view of greenhouse gas reporting transparency and consistency because of the prominent role this graphic has due to its title and size in the more predominant publication of UPM's sustainability reporting.

Summary of our societal impacts

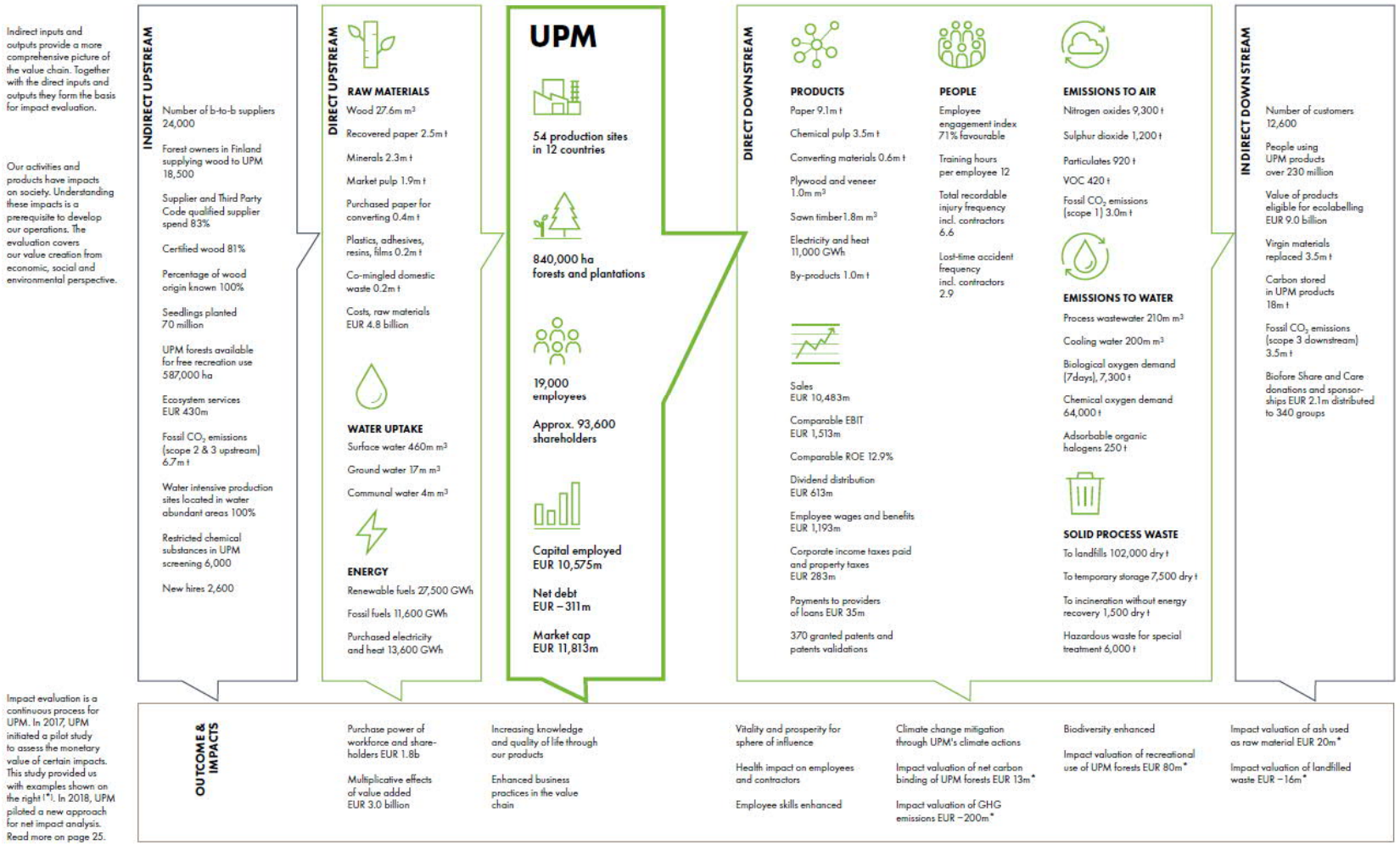


Figure 19: Summary of UPM's societal impacts (p.78-79)

Furthermore, based on the information that UPM (2019a) provides, UPM's combined fossil scope 1 and 2 emissions appear to be 6.25 or 6.35 million tonnes of CO2, which seems to be aligned with what UPM (2018a) presents in Figure 18 in the Annual Report. With this it should be safe to assume that at least UPM's fossil CO2 emissions from scopes 1 and 2 were not in the region of 36.66 million tonnes in the year of 2018, as one might assume from the information disclosure on the sold GHG claims. Although, UPM's total CO2 emissions are not ~6 million tonnes either as Figure 18 might lead one to believe.

Neither are they the total of ~13 million tonnes computable from Figure 19, but over 25 million tonnes of CO2, which becomes apparent from the separate GHG inventory document (UPM, 2019a). This is because in the GHG inventory document, UPM (2019a) states that the scope 1 biogenic CO2 emissions from its operations amounted to 11,71 million tonnes of CO2 in 2018. With this, the total CO2 emissions that UPM (2019a) reports are 25.11 million tonnes of CO2, including all fossil scope 1, 2, and 3 carbon emissions and biogenic scope 1 carbon emissions pertaining to the company's production units.

UPM (2019a) explicitly states that its CO2 calculations exclude "GHG emissions from mobile combustion and from facilities other than production sites and power plants" (p.1). This means that information on e.g. the company's own vehicles and office buildings is not included in the practiced greenhouse gas reporting. From a transparency point of view, the information provided on the GHG inventory document is highly commendable.

However, a less commendable fact from a transparency point of view could be argued to be that the information on the GHG inventory document is not included in the Annual Report or that its existence is not better brought forward in the Annual Report as the separate document can be quite easily overlooked. Also, the Annual Report seems to fail to produce a similar image of the size of UPM's annual CO2 emissions as comes across from the GHG inventory document due to the information being more scattered. Although, the main issue from sustainability reporting transparency's point of view could

be argued to be that there is even a need to speculate on what the total carbon footprint from UPM's operations is.

After all, most readers of UPM's sustainability reporting might simply glance at the Annual Report to gauge UPM's sustainability contributions. Completely omitting the biogenic CO2 emissions from the sustainability report, which seem to be over three times the size of UPM's fossil scope 1 CO2 emissions, and zooming in on the fossil emissions could be seen to provide the reader of the report an inaccurate image of the magnitude of UPM's environmental impacts. Moreover, even the reporting of fossil CO2 emissions has been carried out with certain limitations, as UPM (2019a) explains, and there is no explanation as to why 'mobile combustion' and other facilities were omitted from the reported GHG information.

All in all, UPM's CO2 emissions reporting could be described as quite transparent in the sense that the company has openly disclosed information that could be seen as negative for the environment, such as the sale of the greenhouse gas claims. The CO2 reporting could be argued to have an interesting mix of progressive elements, such as the GHG inventory document, and some elements that could perhaps be done slightly differently to enhance the degree of transparency and consistency further. One of them would seem to be a more balanced approach to information disclosure, which in terms of CO2 emissions could be seen to be aided by the inclusion of the GHG inventory document in the next Annual Report.

4.2.3.2.3. Other deteriorated performance

This section of the thesis has compiled a couple of other examples of how UPM (2018a) has approached disclosing negative environmental performance information in the report by choosing a certain perspective. In Figure 20 below, UPM (2018a) discloses information on the solid waste sent to landfills as a part of its operations in relation to two different products from 2009 to 2018. What can be seen from the charts is that solid waste to landfills has increased for both per tonne of paper and per tonne of converted product since 2017, and for tonnes of converted product solid waste has actually increased for the past two years in a row.

Figure 20: Two charts depicting solid waste to landfills from UPM's operations (p.193)

Nevertheless, the point of view from which UPM (2018a) approaches these charts is how the company has achieved 46% and 82% decreases, respectively, in the amount of solid waste to landfills in the past ten years. Naturally, the long-term trend could be argued to be more important, and the achieved results are commendable and noteworthy. But in a way these charts could be seen to exemplify the seeming reluctance to explicitly state impaired environmental performance "out loud" and to provide any explanation for the impaired performance.

Why this silence seems noteworthy for the thesis is because UPM (2018a) states quite notably in the report how it aims to have "zero solid waste to landfills" (p.13). However, the only way in which the impaired performance on these relative indicators is acknowledged is through the shoddy charts at the end of the report that are presented in Figure 20. In all fairness, the total waste to landfills continued to decrease from last year by 2% (UPM, 2018a) and the increases in the relative indicators in Figure 20 above seem marginal.

However, the answer to how negative information disclosures are made in this instance is that the disclosure is essentially done via the illustrations. In addition, when looking at the balance of positive and negative information in the report, the kind of information disclosure practiced in Figure 20 could be seen to drive the balance towards positive. Nevertheless, first acknowledging the impaired performance and secondly naming the main reasons for the impaired performance would make the reporting more transparent and should not be an overwhelming task.

After all, this is something that UPM (2018) has even done in the report in relation to acidifying flue gases, as can be seen from Figure 21 below. Underneath the chart, where UPM (2018a) discloses information on the acidifying flue gases released as a part of its operations from 2009 to 2018, UPM (2018a) states that "in 2018, the emissions increased slightly at UPM's pulp mills due to increased pulp production" (p.75). The main point that UPM (2018a) appears wanting to convey is having achieved a "29% reduction in acidifying flue gases since 2008" (p.74) could be argued to come across equally effectively. Moreover, the disclosure could be seen as more transparent and trustworthy due to the fact that UPM (2018) acknowledges and provides and explanation for the increased emissions in a forthright manner.

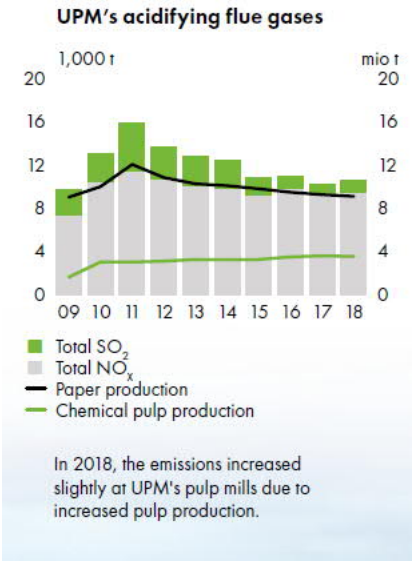


Figure 21: A chart portraying UPM's acidifying flue gases (p.75).

Although, an interesting observation regarding Figure 21 is how the chart indeed starts from 2009, but UPM (2018a) uses 2008 as the year of comparison for the 2018 emissions. Moreover, the emissions of 2009 seem to be lower than during any other year in the chart. This might for instance be due to the 2008-09 financial crisis and should this be the case UPM (2018a) could for example argue that 2009 does not portray an accurate image of the company's operations.

However, there does not seem to be any explanation for the drop in emissions in 2009 or the spike in emissions in 2011 and simply examining the chart shows the emissions to have only increased since 2009. Furthermore, UPM's target has apparently been to reduce acidifying flue gases by 20% by the year of 2030 (UPM, 2018a). Since the company has already reached a nearly 30% reduction in 2018 (UPM, 2018a), and since the 20% reduction target seems to have been reached for some time now, possibly since 2015, an argument could be put forward to mend the target unless UPM plans to stick to the current state of affairs for the next 12 years. After all, UPM (2018a) has identified responsibility as a competitive advantage and the company claims to be "committed to continuous improvement in financial, social and environmental performance" (p.99).

4.2.3.3. Generalization of negative impacts

One distinctive way in which UPM (2018a) discusses negative environmental impacts and phenomena that are associated with the company's operations is that the phenomena and their impacts are discussed on the general, macro level. For instance, UPM (2018a) acknowledges the "threat of deforestation and biodiversity loss" (p. 28) as a challenge for the company with regards to the global megatrend of resource scarcity. In the report, UPM (2018a) explicitly expresses concern for deforestation taking place especially in the tropics and states that "UPM's wood sourcing and forestry operations do not cause deforestation" (p.69).

However, UPM (2018a) does not really discuss the state of biodiversity in its operating areas nor elaborate on the connection between its operations and biodiversity in the report.

In UPM's report, the threat of biodiversity loss could be seen to be mentioned on the macro level, whereas the actions taken to avoid biodiversity loss are discussed in the micro level in relation to UPM's operations. This kind of information disclosure could be seen to detach the company's operations from the negative phenomenon by creating distance to between the negative environmental phenomenon in question and the company's operations while presenting the positive actions as a part of the company's operations.

Moreover, UPM (2018a) claims to have become "the first forest industry company to announce a target to achieving positive impact on biodiversity in company forests in Finland" (p. 69) in the year of 2018. At the same time, the company claims that it "has had its biodiversity programme in place for over 20 years" (UPM, 2018a: 111) and showcases examples of how the company has attempted to maintain biodiversity for instance in its Uruguayan plantations. In addition, UPM (2018a) acknowledges the importance of biodiversity in the report by stating that biodiversity for instance "helps to protect water resources, promote multiple forest uses and ensure the growth of forests that act as carbon sinks to mitigate climate change" (p. 69).

Nevertheless, with regards to the state of biodiversity in one of UPM's most significant operating areas it could be noted as background information that in Finland the use of natural resources has been such that the "total annual material requirement has almost doubled" between 1970 and 2015 (Finnish Environment Institute, 2015a). In 2010, one tenth of studied national species were found to be threatened in Finland (Finnish Environment Institute, 2015b; Rassi et al., 2010) and the threatened species were found in all habitats, but in no other habitat more than in forests (Finnish Environment Institute, 2015c; Rassi et al., 2010), which were found to be the main habitat for 36,2% of threatened species (Finnish Environment Institute, 2015b; Rassi et al., 2010). The trend has now been for decades that more and more species have become endangered in Finland (Finnish Environment Institute, 2015b; Finnish Environment Institute, 2015d).

In the most recent study from 2019, even though the number of studied species had increased from 2010, the proportion of threatened species had also increased so that today every ninth species in Finland can be classified as threatened (Hyvärinen et al., 2019), when every tenth species was classified threatened in 2010 (Finnish Environment Institute, 2015b; Rassi et al., 2010). Consequently, the state of biodiversity could be seen to have deteriorated further in the past decade. In the most recent study Hyvärinen et al (2019) also found that changes in forest habitats due to the economic use of forests was found to be the primary reason for the endangerment of 733 species, or 27,5% of the endangered species.

Naturally, UPM could not have been aware of these latest numbers as Hyvärinen et al (2019) published their report after or around the same time that UPM's annual report for 2018 was published in 2019. However, it seems highly unlikely that UPM would have been completely oblivious to the occurring trends with regards to biodiversity at the time of reporting either as "the largest private owner of forest land in Finland" (UPM, 2018: 109) and owner of "a significant plantations area in Uruguay" (ibid). Consequently, the company's account on biodiversity in the report could argued to be rather skewed in terms of its information balance. Moreover, because of this the company's overall impact on biodiversity could be seen to remain somewhat unclear.

Other topics in which UPM (2018a) could be seen to discuss negative environmental impacts on a general level include water resources and climate change. On water resources UPM (2018a) acknowledges that "water resources around the world are scarce and each watershed is therefore unique" (p.72) and with regards to climate change UPM (2018a) makes the following statements:

"*Extreme weather conditions will increase globally due to the magnitude of climate change. The change in variables like heavy rain falls, wind and snow damages or drought are posing a threat to the balance of nature*" (p.75).

"*Winters in Finland will be warmer and shorter and there will be more rain. Warm winters will make harvesting wood more difficult as the soil will not freeze*" (p.75).

4.2.3.4. Implicit information

The most obvious way how UPM (2018a) could be seen to implicitly disclose information on negative environmental impacts from the company's operations become apparent through some of UPM's targets, such as to "minimise the negative impact of operations on water resources" (p.72) and "minimising the impacts of hydropower facilities" (ibid). The use of the verb 'to minimize' implies the existence of negative impacts that the company attempts to make smaller than what they are. Unfortunately, however, it is not always very explicit what impacts the company is attempting to minimize and what these impacts are like.

For instance, UPM (2018a) identifies itself as a hydropower producer with an over 100-year history and, as mentioned above, the company attempts to minimize the negative impacts of its hydropower facilities. However, the UPM (2018a) does not seem to describe these negative impacts in detail or in relation to its own operations and its own hydropower facilities. Instead, UPM (2018a) generalizes the problem and discusses how hydropower on a general level "can also have an adverse impact on watercourses and their habitats" (p.72).

Only through the case examples of what UPM has done to diminish these impacts can clues of the negative impacts themselves be approximated in a roundabout manner. For instance, the statement "UPM migratory fish programme aims to dismantle migration barriers and test new ways to restore fish stocks all around Finland" (p.73) could be seen to indicate that UPM's hydropower operations cause migration barriers for fish and have contributed to diminishing fish stocks in Finland. In the report, UPM (2018a) presents a project where UPM together with Kuurnan Voima is attempting "to mitigate the effects of fluctuating water levels on the fish habitat" (p.73) in an effort to promote "natural reproduction of the *highly endangered* landlocked freshwater salmon of Saimaa" (ibid).

UPM does not seem to own Kuurnan Voima, which could be argued to make UPM appear in an even more positive light as a benefactor preserving wildlife than if UPM was simply mitigating its own environmental impact on the highly endangered salmon. Nevertheless, UPM (2018a) apparently directly owns nine hydropower plants under UPM Energy and an unspecified number indirectly through its shareholdings in energy companies, and there are no specific references to any environmental impacts from these plants' operations. Moreover, one of the hydropower plants directly owned by UPM seems to operate in the same lake district as Kuurnan Voima, with approximately 20 kilometers between the two plants.

Could it then be possible that UPM might also be partly culpable for that the landlocked freshwater salmon in Saimaa has become highly endangered? According to North Karelia ELY Centre's Department of fisheries and fishing (n.d.), the construction of UPM's hydropower plant in Kaltimo in fact destroyed 98 hectares of the salmon's approximated 177 hectares of natural reproduction area. Whereas Kuurnan Voima's plant destroyed somewhat less (73 hectares) of the salmon's natural reproduction area to bring the total of destroyed reproduction area to 171 out of 177 hectares between these two hydropower plants (North Karelia ELY Centre's Department of fisheries and fishing, n.d.).

In other words, UPM seems to participate in a project to build a small power plant to help the salmon reproduce naturally with an unspecified amount of money after the company's plant has destroyed ~55% of the salmon's reproduction area – while Kuurnan Voima acts as the party orchestrating the project and is in charge of the actual construction of the small power plant. Based on these facts, could UPM (2018a) be said to have provided the full picture of the situation to the reader of the report? How transparent has UPM's sustainability reporting been for a company that has identified transparency as an opportunity for competitive advantage (p.29) and describes "credible and transparent reporting" (p.24 & 70) as "the basis for responsible business conduct" (p.24) and as "our way" (p.70) of doing business?

"*UPM provides comprehensive environmental information, verified by third parties, on all aspects from corporate level to the mills and individual products*" (UPM, 2018a: 97)

The way the information is presented here is that the negative impact is distanced from the company's operations by alluding to the general possibility of adverse impacts with hydropower plants, whereas UPM (2018a) explains in detail of a project to create a positive impact while withholding information on the bigger picture. In a sense, this hydropower discussion could be seen to relate to the biodiversity discussion earlier and in both cases, there could be seen to exist a mix of generalization of negative impacts and implicit information of negative environmental impacts of UPM's operations. Consequently, the division of these examples to the categories of 'generalization of negative impacts' and 'implicit information' is rather artificial, but the thesis found it easier to present these two as individual methods due to their distinctiveness, albeit UPM (2018a) seems to have combined them skillfully to address some of the less admirable environmental performance aspects of its operations in the sustainability report.

Another section of the report that seems susceptible to contain implicit negative information deals with UPM's operations in water-stressed areas. Whereas UPM (2018a) explicitly states that "water resources around the world are scarce and each watershed is therefore unique" (p.72), an interesting observation from the report is how UPM (2018a) discusses its operations in water-stressed areas. While UPM (2018a) states that it does not have "plantation operations in water-stressed areas" (p.68), with regards to production operations UPM (2018a) states that "all of UPM's <u>largest</u> production plants are located in areas where there is sufficient water available" (p.111 – formatting added).

The sentence seems to imply that not all of UPM's production sites do not operate in areas that have water in abundance, but some small- to medium-sized production plants may operate in areas where there is not sufficient water available. Otherwise, it is difficult to think of a reason for including the word "largest" if all production plants operated in areas with sufficient water resources. This observation could be seen to be further validated by

the targets that UPM (2018a) has "to use water responsibly" (p.72) and to "minimise the negative impact of operations on water resources" (p.72) as these targets could be seen to indicate that there are negative impacts from UPM's operations on water resources and that UPM does not use water responsibly as of yet in all operations.

This seems to be the situation even though "operations in areas with sufficient water resources" (UPM, 2018a: 72) is presented as one way in which UPM aims to reach responsible water use and the Board of Directors claims that "UPM uses water responsibly in terms of the company's water consumption and effluent quality" (p.111). From a transparency point of view, this thesis believes that presenting the phrase "operations in areas with sufficient water resources" (UPM, 2018a: 72) as a part of 'our way' may regrettably mislead readers of the report such as potential investors to think that UPM has no operations in areas with limited water resources, whereas the phrase is indeed probably simply intended to showcase just one method with which UPM strives towards responsible water use. Moreover, similarly unfortunate seems to be that the Board of Directors does not specify the aspects in terms of which UPM is using water less responsibly.

4.2.3.5. Visual elements enhance positive image

Visual elements, i.e. illustrations, charts, and graphics, seem to be one factor in UPM's annual report that are used to both disclose negative information and to drive the balance between positive and negative information towards positive. Inserting appealing visuals in the report could be seen to drive the perceived balance of information towards positive. In addition, interestingly there seem to be instances in the report where UPM (2018a) uses the visuals as the only means to disclose negative information relating to environmental impacts and performance.

A common characteristic to UPM's use of charts seems to be that they do not provide very accurate information regarding the company's operations, but rather simply indicate the size of the impact and a possible trend. Essentially the relatively low information

value of the visuals would not be a problem if the visual was accompanied by specific textual information about the impacts and performance. However, since the charts occasionally seem to be the only mediums to convey certain information, it would be preferable for them to hold higher information value.

Currently, many of the charts are small and the used scales are quite simple. Below are few examples. In addition, previously examined charts in Figure 18, Figure 20 and Figure 21 could be argued to follow the same pattern.

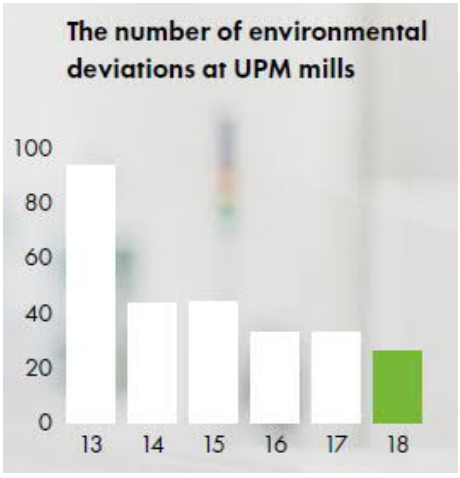


Figure 22: A chart depicting the number of environmental deviations at UPM mills (p. 71)

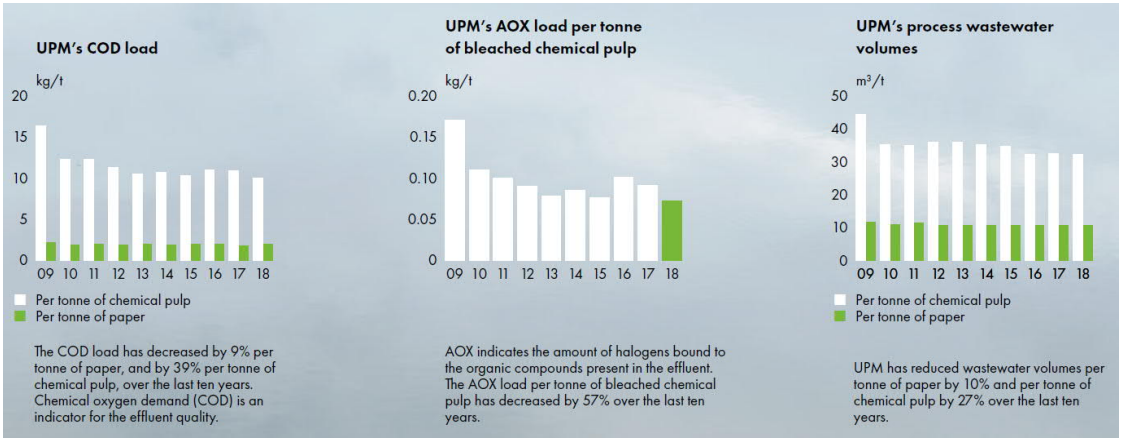


Figure 23: Charts about environmental performance indicators from (p.73)

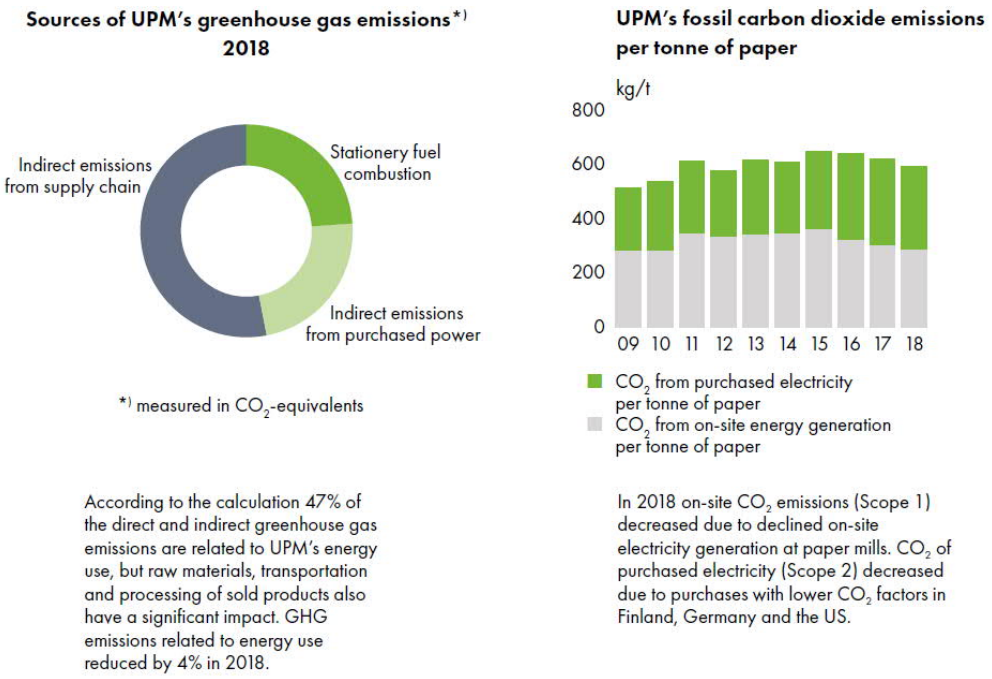


Figure 24: Charts about UPM's greenhouse gas emissions (p.193)

From the above illustrations, it is difficult to determine the exact number of environmental deviations or emissions. In Figure 23, the comparison year that is referred to in the footnotes does not seem to be included in the charts themselves. In Figure 24, the pie chart and its footnotes use different categorization of emissions and the pie chart does not indicate relative percentages or absolute amounts of the described emission categories.

4.3. Reporting boundaries

As completeness of the provided information is an important consideration for sustainability reporting, the reports "should include coverage of material aspects and their boundaries, sufficient to reflect significant economic, environmental and social impacts, and to enable stakeholders to assess the organization's performance in the reporting period" (GRI, cited by Zsóka & Vajkai, 2018: 34). Furthermore, Antonini and Larrinaga

(2017) posit that "the boundaries of significant sustainability indicators should encompass all entities over which there is sustainability control, together with indirect impacts arising from activities across the supply chain, and not merely direct impacts caused by entities within boundaries based on financial control" (p.123), because in 2/3 of economic sectors more than 75% of an organization's environmental impact in terms of carbon footprint is likely to come indirectly from activities related to the reporting organization's operations (Matthews et al., 2008, cited by Antonini & Larrinaga, 2017). After all, the reporting organization's impacts can seem very different depending on where the reporting boundary is drawn.

4.3.1. Stora Enso

Stora Enso does not explicitly mention in its sustainability report which organizational boundary for GRI reporting it has adopted, equity share or control approach. Regarding the sustainability report's data boundaries, Stora Enso refers to voting rights as a key criterion, as can be seen from the direct quote below:

"*Unless otherwise stated, the Group's consolidated performance data expressed in this report covers the parent company, Stora Enso Oyj, and all companies in which we hold* ***over 50% of voting rights directly or indirectly****. The consolidated figures and reporting on human rights, occupational safety, community, and forests, plantations, and land use also include the 50% owned joint operations Veracel in Brazil and Montes del Plata in Uruguay, due to their materiality to the Group's sustainability impacts and stakeholder interest. Otherwise the* ***consolidated figures do not include equity-accounted investments*** *where Stora Enso's ownership is between 20% and 50%, or companies in which our ownership share is less than 20%.*" (p.36, formatting added).

The fact that there are no "equity-accounted investments" in Stora Enso's consolidated figures suggests together with the voting rights criterion that Stora Enso uses control-based approach for its GHG accounting. Moreover, since voting rights are tied to

shareholders' ability to influence a company's operations (Kenton, 2018), Stora Enso's organizational boundary for GHG accounting might be based on operational control.

An interesting point with regards to the quote above is how Stora Enso acknowledges that Veracel and Montes del Plata are material to its stakeholders due to their sustainability impacts. Furthermore, Stora Enso indicates that the South American duo is included in certain sections of the report despite of the fact that they do not meet the chosen main organizational boundary for reporting, which is that Stora Enso needs to have *over* 50% of voting rights directly or indirectly. So, the South American joint operations in which Stora Enso has 50% ownership are deemed as important information to stakeholders and are thus *partly* included in the report (in the sections specified in the excerpt) but not in all of the sections of the report.

"*Consolidated environmental and energy data covers our production units. Stora Enso's sawmills and converting facilities are excluded from water, energy, and certain CO2 indicators that are normalised per tonne of sales production unless otherwise specified in the respective footnotes. This is due to the lower materiality of sawmills and converting facilities in the Group's related performance and different metric for sales production (cubic metre and square metre, respectively), compared with board, pulp and paper mills (tonnes)*" (Stora Enso, 2018d: 68).

Stora Enso explains that information regarding its production units, i.e. its board, pulp, and paper mills, is more important to stakeholders than information about its sawmills and converting facilities, and that the environmental data covers these production units. The company also provides justification for why sawmills and converting facilities are ruled out from the report. Nevertheless, interestingly the company does not explain why Veracel and Montes del Plata are ruled out from most of the report's environmental data, such as the CO2 indicators.

After all, Montes del Plata is a eucalyptus wood pulp mill and Veracel is a pulp mill. In other words, both are production units, and quite large ones at that. Montes del Plata was classified as Uruguay's largest private investment ever, when it inaugurated in 2014 (Globalnewswire.com, 2014). It was deemed as the 14th largest pulp mill in the world in 2017 (Keskisuomalainen, 2017) and has an annual capacity of 1,4 million tonnes of short-fiber pulp (Stora Enso, n.d.1). Veracel mill's annual capacity is 575,000 tonnes of short-fiber pulp on a land area of 211,000 hectares (Stora Enso, n.d.2). According to Stora Enso's own website, the 50% of Montes del Plata's annual output of approximately 700,000 tonnes of pulp that is "owned by Stora Enso" (Stora Enso, n.d.1) is considerably more than the full annual capacity of most of its other pulp mills based on the information available on the company's website about the mills' annual capacities.

For this reason, it would be interesting to know the CO2, phosphorus, nitrogen, AOX, COD, fuels, energy, etc. emission/consumption of these pulp mills, since Stora Enso itself admits in the company's sustainability report for example hat "b*oard,* ***pulp****, and paper* ***production processes are the most energy-intensive phases in Stora Enso's value chain***" (p.36 – formatting added).

The reason why this seems odd is because basic principles for GRI reporting include relevance, completeness, consistency, transparency, and accuracy. Stora Enso has rightly included information about Montes del Plata and Veracel because stakeholders have deemed this information material. However, the manner in which information is being disclosed with regards to these pulp mills could be described as incomplete and somewhat inconsistent as well as lacking a certain degree of transparency.

In a sense it is understandable that Stora Enso did not include e.g. Montes del Plata in the report. For example, carbon emissions are not always exactly straightforward to calculate and the voluntary reporting of anything may not be the most important or urgent task with an investment of this scale. With the mill being inaugurated in 2014, the integration of its emissions to the consolidated CO2 indicators can also be tricky since the base year for

the greenhouse gas emissions was set at 2010. Although, Veracel was inaugurated in 2005, so the base year should not be a problem for the pulp mill in Brazil.

In addition, Stora Enso does not indicate any plans to include Veracel and Montes del Plata in its CO2 footprint either. If Stora Enso was planning to include the South American joint operations in its sustainability reporting to a greater extent in the future, this piece of information and how the company plans to get towards the completeness of the reported information would be interesting information to share.

Nevertheless, leaving the South American joint operations out from a big portion of the environmental data in the sustainability report, even though Stora Enso knows that these mills are material to stakeholders and they have been included in financial and some other figures, creates an impression that Stora Enso simply does not want to take responsibility for the environmental impacts of these mills. The lack of transparency on Stora Enso's overall sustainability impacts that is created through the selection of these organizational boundaries for reporting as well as the inconsistent and incomplete disclosure of information could be seen to undermine the credibility and trust for the company's reporting practice – even though Stora Enso (2018d) has transparently reported that joint operations are out of scope for the environmental calculations. At extremes, this might even be said to resemble greenwashing.

The reason being, that most of the information disclosed on the sustainability report with regards to Veracel and Montes del Plata could be classified as positive and as information that makes the company more attractive in shareholders' and investors' eyes (unsurprisingly, admittedly; given the context). Omitting e.g. the CO2 emissions of these two mills from the report simply leaves an impression that there must be something unflattering in this information for the company. A more transparent course of action would be to at least provide a justification for the omission of the South American operations' environmental data.

With joint operations, it must be acknowledged that there are two parties to the business relationship. There is of course the possibility that the other party would not agree to disclosing all environmental data from the joint operations, even though Stora Enso were to strongly advocate for it. However, if this were the case, perhaps there would be a way to indicate this being the case without causing a fallout in the business relationship. Moreover, on page number 6 of its sustainability report, Stora Enso states the following:

"*Our joint operations in Brazil (Veracel) and Uruguay (Montes del Plata) have their own sustainability teams, and sustainability topics are regularly discussed by their boards, which include representatives from their parent companies. Sustainability is also regularly covered by Stora Enso's joint operation steering committees for Veracel and Montes del Plata*" (Stora Enso, 2018d: 6).

The quote only serves to strengthen the impression that Stora Enso simply does not want to take responsibility for the sustainability impacts of its South American operations. After all, if these operations have their own sustainability teams, they probably are tracking the environmental data on the mills. This would mean that the data is readily available, but Stora Enso may simply want to hide it due to its unfavorable nature. On the other hand, it could be considered odd if the sustainability teams were not tracking this data. Why would Stora Enso not have shared its vast know-how on measuring and reporting environmental data to these sustainability teams?

The answer as to why Stora Enso appears to be hiding unfavorable environmental data from its South American operations may be found on page 47 of Stora Enso's report that contains a table about Stora Enso's carbon footprint between 2014-2018. The table shows how Stora Enso's total carbon footprint has increased by 7 percent – even without the South American joint operations. Should the South American emissions be included in this table, the percentage would most likely increase by a quite considerable margin. Furthermore, should the South American emissions be included in all the other

environmental data as well, it would most likely start to close the gap to the 2010 base year and drive down the seemingly impressive achievements in CO2 and other reported emission reductions.

Stora Enso's carbon footprint 2014–2018[1 2]

	Fossil CO_2 equivalent (million tonnes)[3]					
	2014	2015	2016	2017	2018	Trend 14–18
Scope 1: Direct emissions from our operations.	2.40	2.24	2.40	2.34	2.49	4%
Scope 2: Emissions from purchased energy consumed in our operations.[3]	1.41	1.19	0.97	1.10	1.06	-25%
Scope 3: Emissions from other sources along our value chain.[4]	6.88	7.26	7.65	7.97	7.89	15%
Total	**10.69**	**10.69**	**11.02**	**11.41**	**11.44**	**7%**

[1] Covers all Stora Enso production units. Excluding joint operations.
[2] Historical figures recalculated due to accuracy improvements.
[3] The CO_2 factors we use for purchased energy (scope 2) largely follow the market-based methodology, which means that almost all our units apply CO_2 factors provided by their energy suppliers. When applying currently available location-based factors our scope 2 emissions for 2018 are 1.30 million tonnes of CO_2 equivalents.
[4] Historical scope 3 emissions recalculated bi-annually against the most recent methodology in order to ensure comparability.

Figure 25: A table illustrating Stora Enso's carbon footprint between 2014-2018 with footnotes (p. 47)

After all, there is a diagram on page 51 of Stora Enso's sustainability report, where the joint operations are included. This diagram depicting wood procurement by region shows how the South American joint operations apparently account for 10 percent of the wood that Stora Enso has procured in 2018. This 10 percent of all wood procurement naturally does not necessarily translate into a 10 percent increase in emissions, but it seems like a considerable proportion of operations, nonetheless.

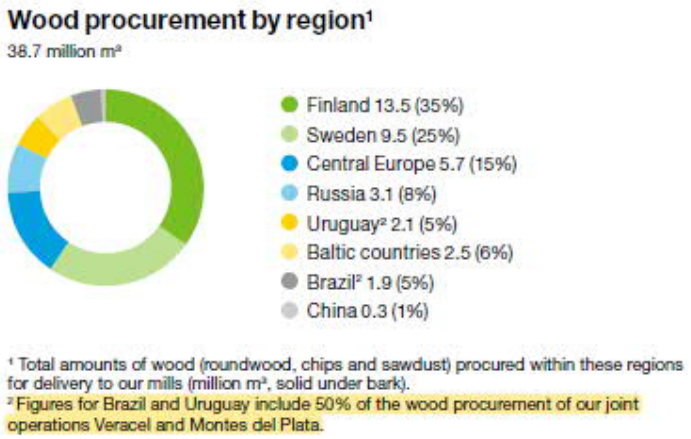


Figure 26: Diagram depicting Stora Enso's wood procurement by region (p.51)

Table 2 below compiles the information categories in which Stora Enso's South American joint operations are explicitly included and excluded in the environmental data tables, charts, and graphs of Stora Enso's sustainability report.

Environmental data tables, charts, and graphs, where joint operations are explicitly **excluded**:		Environmental data tables, charts, and graphs, where joint operations are explicitly **included**:	
Utilization of process waste and residual materials	p.36	Wood procurement by region	p.51
Process waste to landfill	p.36	Forests, plantations, and lands owned by Stora Enso as of 31 December 2018	p.54
Phosphorus	p.37	Forests and plantations leased and managed by Stora Enso as of 31 December 2018	p.54
Nitrogen	p.37		
Absorbable organic halogen compounds (AOX)	p.37		
Chemical oxygen demand (COD)	p.37		
Fuels	p.38		
Electricity	p.38		
Heat Consumption	p.39		
Electricity Consumption	p.39		
Efficient use of materials in circular bioeconomy	p.40		

(contains environmental information on: Wood, Fossil fuels, External biomass energy, Water, Purchased electricity, Purchased pulp and paper for recycling, Pigments, fillers, starch, and other chemicals, Externally delivered electricity/heat/steam, Residuals for beneficial use)			
Stora Enso's GHG performance and scenarios for forest industry	p.44		
Greenhouse gas emissions (GHG) in relation to production	p.47		
Carbon footprint 2014–2018 (Scopes 1,2 & 3)	p.47		
'Carbon neutral' CO 2 emissions	p.69-71		
Stora Enso's carbon footprint	p.48		
Data by production unit	p.69-71		

Table 2: Comparison of environmental data tables, charts and graphs in Stora Enso's sustainability report on whether they include or exclude the South American joint operations

As a finishing note, Stora Enso explain in its report about EU's Emission Trading System, and how the EU allows for "free leakages" to prevent companies from taking production outside of EU jurisdiction. Stora Enso also acknowledges that the EU aims to reduce free emission allowances, or carbon credits, gradually to combat global warming. The South American joint operations could be seen to be outside of the EU Emission Trading System's influence.

4.3.2. Metsä Group

Metsä Group does not seem to explicitly state its consolidation approach for non-financial information. Regarding its reporting boundaries, Metsä Group states in their report the following:

"*Metsä Group comprises of Metsä Forest, Metsä Wood, Metsä Fibre, Metsä Board and Metsä Tissue. Our reporting covers the whole Group, including production, warehousing and sales units.* ***Sustainability reporting follows the same principles of consolidation as our Financial Statements***" (Metsä Group, 2018a: 63).

An examination of Metsä Group's annual review for 2018 reveals the following:

"*Metsä Group's* ***consolidated financial statements have been prepared in accordance with the International Financial Reporting Standards (IFRS)****, applying the standards and interpretations that had been approved by the EU and were effective on 31 December 2018*" (Metsä Group, 2018b: 19).

As for the IFRS accounting standard, the basis for consolidation seems to be control (IFRS, n.d.). According to the GHG protocol, when GHG emissions are consolidated with the control approach, there are two alternative sets of criteria for determining whether a company has control of another company's operations: financial and operational (WRI & WBCSD, 2004). Albeit an operation is in most cases in the reporting company's control regardless of whether financial or operational criteria is used, there are exceptions as well (WRI & WBCSD, 2004), which is why knowing the exact consolidation approach may help to more accurately determine what operations and impacts the chosen consolidation approach may include and rule out. In the end, under the control approach, a company only accounts for those GHG emissions that it controls (WRI & WBCSD, 2004), which means that it may enable and benefit from operations with varying degrees of sustainability impacts that are left unaccounted for because a lack of direct control.

Due to insufficient knowledge on the IFRS accounting standard, it is not immediately obvious whether Metsä Group's sustainability report follows the financial or operational control approach outlined in the GHG protocol. Nevertheless, the GHG protocol states that:

"***A company has financial control over an operation for GHG accounting purposes if the operation is considered as a group company or subsidiary for the purpose of financial consolidation****, i.e., if the operation is fully consolidated in financial accounts*" (WRI & WBCSD, 2004: 17-18).

With regards to its consolidation principles for subsidiaries, Metsä Group states that "*in addition to the parent company, Metsäliitto Cooperative, the* ***financial statements include all of the companies controlled by the Group***" (Metsä Group, 2018b: 20) [formatting added]. This could be an indication that Metsä Group's organizational boundary for its sustainability reporting might be based on financial control. At least the companies on Metsä Group's financial statements satisfy financial control criteria for GHG accounting purposes. Moreover, the following two excerpts regarding joint operations and associated companies seem to lend more support for the interpretation of financial control consolidation approach being used:

"*A joint operation is a joint arrangement in which parties who have joint control in the arrangement have rights concerning the assets related to the arrangement and obligations concerning liabilities.* ***The Group consolidates its proportion of the assets, liabilities, income and expenses of the joint operation in its financial statements***." (Metsä Group, 2018b: 20) [formatting added]

"*Associated companies include all companies of which the Group has considerable* ***influence but no control****. Significant influence is usually based on a shareholding conferring 20–50% of the voting rights. A joint venture is a joint arrangement in which the parties that have* ***joint control of the arrangement*** *have rights to its net assets. Investments in* ***associated companies and joint ventures are processed using the equity method****, and they are initially recognised at acquisition cost.*" (Metsä Group, 2018b: 20). [formatting added]

Based on this, it seems that Metsä Group would use both control and equity share approaches in its financial reporting, control approach for consolidating subsidiaries and

equity share approach for joint ventures and associated companies. In a sense this could be seen to support the interpretation of financial control being used for Metsä Group's (2018a) GHG accounting. This is because the GHG protocol appears to state that when financial control "criterion is chosen to determine control, emissions from joint ventures where partners have joint financial control are accounted for based on the equity share approach" (WRI & WBCSD, 2004: 18).

It could be argued that with joint ventures and associated companies being included in GHG reporting stakeholders could gain a more holistic image of Metsä Group's sustainability impacts, which would be more transparent than had they been left out of the report. Nevertheless, one way to make the sustainability report even more transparent would be to explicitly state what is left out of its scope and explain in more detail the entities included in the non-financial figures. For example, in Metsä Group's *Annual Review 2018* (a separate document from the sustainability report), section 7.2 'Investments in other companies' contains few tables listing the Group's subsidiaries, joint ventures and associated companies and what the Group's ownership stake is in each of them. One table in the sustainability report to list the reported entities and those ruled out should not take too much space or efforts to create.

Currently, Metsä Group's sustainability report essentially only states explicitly that Metsä Forest, Metsä Wood, Metsä Fibre, Metsä Board as well as Metsä Tissue and their production, warehousing and sales units are within the scope for the report. This is followed by a reference to another document, which refers to an accounting standard that is not very informative to someone not familiar with the standard. There is no explicit reference to joint ventures and associated companies being included or excluded in the disclosed information. The sustainability report is stated to "[cover] the whole Group" (Metsä Group, 2018a: 63), but the boundaries of what comprises the Group could be more accurately defined.

Consequently, Metsä Group (2018a) can be said to transparently describe its reporting boundary. However, there seems to be ways in which the boundary could be made more

explicit. Understanding the boundary may not be as straightforward as it could be. Nevertheless, it seems that the primary approach is financial control, for which a justification could be assumed to be an alignment between consolidation principles for financial and non-financial information. This approach seems be complimented by the equity share approach with regards to joint ventures and associated companies.

4.3.3. UPM

UPM does not seem to explicitly state all reporting boundaries or the chosen consolidation approach for the non-financial information in the Annual Report. Towards the end of the report, there is an 'Auditor's report' section, which explains 'group scoping'; "the group audit scope encompassed all significant group companies, as well as a number of smaller group companies in Europe, Asia, North America, and South America" (UPM, 2018a: 183) above a certain materiality threshold. Furthermore, "audits were performed in group companies which were considered significant either because of their individual significance or due to their specific nature" (p.184). However, the boundary describe here seems to be for the financial information, as at the auditors' note at the end of the 'Auditor's report' section that "our opinion on the financial statements does not cover the other information" (UPM, 2018a: 186).

In terms of the reporting guidelines, the Annual Report states that "UPM follows the Global Reporting Initiative's (GRI) Sustainability Reporting Standards in its corporate responsibility reporting" (UPM, 2018a: 96) and that "the reporting has been prepared in accordance with the GRI Standards: Core option" (ibid). Moreover, there is a notation from the auditors of financial information regarding non-financial information that the "Board of Directors and the Managing Director are responsible for the other information" (UPM, 2018a: 186). However, a separate document called *UPM Greenhouse Gas Inventory 2018* in UPM's reporting does provide more detailed information and explicitly states that the UPM's greenhouse gas consolidation approach is based on financial control (UPM, 2019a).

In relative terms, this separate document could be described as highly illustrative and transparent of the GHG reporting boundaries used at UPM. The GHG inventory document describes both the organizational and emission boundaries for GHG reporting and even provides justifications for excluding some of the scope 3 activities from the emission calculations. To increase the transparency of the reporting boundaries, the GHG inventory document could be included in the Annual Report as with the document being separate from the main report it can quite easily be overlooked.

There does not seem to be any explicit reference to joint operations, joint ventures or associated companies being included or excluded in the disclosed non-financial information. They seem to be noted in the financial information, which could be taken as an indication that they might also be included in the non-financial information via the equity approach based on the chosen consolidation approach for non-financial information. However, at least in terms of GHG emissions this would then seemingly only apply to the production units of the joint operations, joint ventures, and associates.

4.4. Internal organizational factors

Back in the literature review, Thijssens et al (2016) to concluded that "internal management processes regarding sustainability reporting may be more informative about the [company's] actual sustainability than the content of the report" (p.100). Some internal organizational factors that could therefore be argued to depict the embeddedness of CSR activities within the case companies are whether the report explains how CSR is managed within the company – with what kind of mechanisms, policies, instructions, etc. Another could be whether sustainability criteria are embedded in the remuneration of top management. Thirdly, information on how the sustainability reporting process is organized and carried out could be seen to depict how integrated the practice is at the company.

The ‘internal organizational factors’ variable helps to evaluate how transparent the content the content in the sustainability report is; whether the content is genuine, and the CSR activities integrated or detached to the company’s everyday operations.

4.4.1. Stora Enso

Stora Enso’s ‘sustainability agenda’ is based on the triple bottom line approach and involves ten key sustainability topics that the company has deemed as material (Stora Enso, 2018d). To aid the management of the sustainability work, Stora Enso (2018d) has set targets and key performance indicators. Impressively, progress on the targets seems to be monitored quarterly at division-level business reviews and ‘regularly’ at Group level (Stora Enso, 2018d).

In addition, some of the sustainability indicators on the sustainability report are also reported to the public quarterly via Interim reports (Stora Enso, 2018d). Moreover, Stora Enso (2018d) has crafted a sustainability policy “to describe our overall approach to sustainability” (p.5), which is supported by documents such as Stora Enso’s Code of Conduct, Human Rights Policy as well as other policies and more detailed guidelines on specific topics relating to sustainability (ibid). Organizational entities involved in the management of CSR work seem to be the Board of Directors, Group Sustainability Team, various functions (HR, Legal, Wood supply, Sourcing and Logistics), various divisions (Consumer Board, Packaging Solutions, Biomaterials, Wood Products, Paper) that all have their own Head of Sustainability, Sustainability Council comprised of representatives from various business functions, the Group Leadership Team together with the CEO, who has been tasked with “the ultimate responsibility for the successful implementation of our sustainability strategy” (Stora Enso, 2018d: 5).

Stora Enso (2018d) describes its stakeholder engagement to consist of both structured and ad hoc interactions. Methods include e.g. surveys, formal grievance channels, and social media engagement (Stora Enso, 2018d). Also, Stora Enso (2018d) provides an overview

of its materiality review, which the company considers to complement its Enterprise Risk Management processes.

Furthermore, "sustainability is one of the performance metrics in the [Group Leadership Team] members' remuneration through Short Term Incentive programmes" (Stora Enso, 2018d: 6) and "different members of the GLT can be assigned appropriate sustainability indicators" (ibid). The evaluation criteria for the short-term incentive programme seems to consist 70% of financial performance metrics and 30% of individual targets, which "are based on a balanced scorecard approach within the categories of Customer, People, Sustainability and Special Projects" (Stora Enso, 2018f: 13).

The exact process for compiling the sustainability report – how to report comes to be, who all are involved, etc. – is not described in the report. However, it appears obvious that this report has not been commissioned from a third party in order to publish 'something that looks nice', but rather that the report has been prepared in-house and that the practice is ingrained into the company's everyday activities.

Overall, all the provided information on internal organizational factors could be said to enhance the transparency of the practiced reporting and everyday sustainability work at Stora Enso as well as the credibility of the report's contents. Considerably more detailed description of internal organizational factors in the report itself might not be purposeful, and Stora Enso (2018d) seems to have made good use of links to e.g. their website, where more detailed information on the various policies and guidelines is provided. Notably though, Stora Enso (2018d) seems to disclose considerably less, albeit some, information on the sustainability governance of its joint operations.

4.4.2. Metsä Group

Metsä Group's (2018a) sustainability process management model, renewed strategy, values, material topics, and sustainability objectives could be seen as internal organizational factors that guide and support its non-financial performance. Metsä Group

(2018a) states that “comprehensive sustainability management has strong roots in Metsä Group” (p.8) and that “each target is systematically followed to drive sustainable future development” (ibid). Unfortunately, the process of how the targets are followed does not seem to have been explained, who reviews what and how often.

However, Metsä Group (2018a) seems to have drafted management tools such as the Code of Conduct, Sustainability Principles, Code of Conduct for Suppliers, compliance channels for raising concerns of misconduct and guidelines on e.g. how to consider bird-life in harvesting operations to guide the company’s daily actions. The company has also engaged in a human rights impact assessment process, various personnel trainings, supplier sustainability assessment processes and audits, environmental product calculations, and has certified management systems, such as ISO 9001, ISO 14001, FSSC 22000, ISO 22000, ISO 50001. Parties involved in the management of sustainability work include the Board of Directors, CEO/ President and the rest of Metsä Group Executive Management Team as well as Sustainability Process Management Team comprised of business area representatives and function heads.

The key to implementation appears to be “business areas’ and functions’ processes and annual plans to daily actions” (Metsä Group, 2018a: 9). Also, Metsä Group (2018a) posits that it “has a remuneration system that supports our strategy implementation and motivates us to reach our goals” (p.54). However, sustainability criteria’s role in the remuneration system does not seem to have been discussed in the sustainability report or annual report more than this. Finally, the external auditor’s report seems to point to “Metsä Group’s own internal reporting guidelines” (p.64), but the practiced sustainability reporting process is not discussed in the report and it seems plausible that reporting would be limited to the annual sustainability report as well as similarly annual UN Global Compact report.

Overall, it seems that Metsä Group (2018a) provides an overview of how it manages sustainability efforts and the company has transparently described key elements in its sustainability management model. However, certain elements such as the remuneration

system have been touched upon superficially and could be seen to lack a certain degree of transparency. The report's transparency could be seen to benefit from more detailed description, or 'evidence', regarding these practices.

4.4.3. UPM

UPM's 'responsibility thinking' seems to be first and foremost risk-based with rather extensive risk analyses being carried out, but also extends to creating competitive advantage and long-term value. To manage non-financial performance, UPM has established focus areas, Biofore strategy, targets, and key performance indicators to guide its actions (UPM, 2018a). These management tools appear to be subjected to an annual review in connection with an annual materiality analysis and to be complemented by or to stem from company values and Code of Conduct (UPM, 2018a). Moreover, there seem to be "more detailed policies approved by the Board of Directors, rules approved by the Group Executive Team, and our business areas and global functions" (UPM, 2018a: 109) on "topics such as the treasury, disclosures, insider matters, anti-bribery, competition law, confidentiality, contract management, human resources, the environment, forestry, information security and data protection, and safety" (ibid).

Moreover, suppliers, third parties and joint venture partners are all expected to apply to the UPM Code of Conduct as well as social and environmental criteria, which have been registered in the UPM Supplier and Third Party Code (UPM, 2018a). Involved in the management of non-financial matters can be seen to be the Board of Directors, the Audit Committee, Chief Compliance Officer, Internal Audit personnel, the Group Executive Team, Function, Compliance team, Sourcing organization Legal, while the daily efforts are situated in the businesses and functions as well as the Group Responsibility team (UPM, 2018a). Other tools the company uses seem to be certified management systems (ISO 9001, 14001, 22000, OHSAS 18001, and EMAS), a channel for reporting misconduct, various risk assessments, various due diligence measures, training programs, supplier questionnaires, audits, joint development plans as well as guidelines, such as UPM's Restricted Substance List (UPM, 2018a).

Other internal organizational factors UPM (2018a) describes in the sustainability report are the materiality analysis process and how stakeholder relations consist of continuous dialogue, stakeholder mapping, and gathering feedback via various methods – such as surveys. UPM seems to have created an extensive internal control system for risk management as well as accurate and reliable financial reporting. In addition, UPM's internal reporting on non-financial information seems to consist of e.g. risk reports and quarterly compliance reviews.

All in all, the described package seems quite comprehensive. There seems to be quite extensive and transparent overview of how responsibility efforts are managed and carried out at UPM. The report contains references to internal guidance documents and policies and based on all the functions and other organizational entities involved in CSR work, it seems that the practice is fairly integrated into UPM's operations. The described internal organizational factors could be seen to satisfy the need from a transparency point of view, as going into much more detail of internal organizational practices may not be convenient or purposeful – even though it would be interesting if e.g. UPM's sustainability criteria for choosing and evaluating suppliers was made transparent.

Based on what is explicitly stated in the report, it does not seem like sustainability criteria would be a part of the top management's or other employees' compensation. The remuneration seems to consist of business and individual targets, which seem to be linked to 'predetermined financial targets'. Albeit the sustainability reporting process itself is not described in the report (except perhaps for the quarterly compliance reviews, which could be seen to be a part of this), based on all the provided information it seems that the sustainability report is compiled in-house and the data associated with the report is followed up more often than once per year.

4.5. Prerequisites for comparability

The third research question dealt with how comparable the disclosed information in the sustainability reports are. To answer this question, the study opted to focus on two main points as the primary determinants of the disclosed information's comparability: 1) what variables are being measured and reported in the sustainability reports' environmental data, and 2) what measurement units are used to report the measured variables in the environmental data tables and charts in the reports. In addition to this, the study also examined what GRI sections were covered by the companies in their reports since all examined units of analysis announced to abide by the same reporting standard in GRI (Stora Enso, 2018a; Metsä Group, 2018a; UPM, 2018b).

The tables discussed in this section of the thesis and presented in the appendices compile extensive lists of the variables and measurement units that the case companies' have used to disclose information on their environmental impacts in their sustainability reports. However, the tables do not contain all the variables and measurement units that have been reported in the sustainability reports' environmental data. This is because this study has opted to focus on variables that describe environmental performance on the level of the entire entity rather than on a sub level, which may not provide as meaningful comparison points across the examined units of analysis.

Furthermore, variables reported in terms of absolute quantities are given slight preference over variables reported in relative units of measurement, such as percentages, in the following analysis. This is because there are variables in the case companies' sustainability reports that are being reported as percentages of the company's own operations and have no mention of what unit quantity the percentage corresponds to, or how large 'the whole' (100%) actually is in units. Thus, the percentage does not tell much in absolute terms and absolute quantities could perhaps be deemed more comparable across the units of analysis. Moreover, in the face of both global warming and excess consumption of natural resources absolute quantities could be argued to reflect better the case companies' total impact on the environment.

For example, the sustainability reports may contain information such as how '*Example Mill A*' uses a percentage of '*something*' in its operations. Naturally, the case company reports this kind of information to describe what the company is doing with regards to a given topic through an example. However, this kind of examples regarding one or few individual mills do not necessarily describe the company-wide performance. For this reason, they are left out of the analysis here as they represent the wrong level of analysis.

Moreover, for instance environmental performance targets are excluded from the analysis, because the focus is on the companies' current environmental performance. The choice has also been made here that variables concerning management systems, code of conducts, and other governance tools/methods are not treated as environmental data to be looked at in this section of the thesis, albeit they could be argued to have strong linkages to environmental performance. Nevertheless, the tables in this section contain the most significant group-level variables that could be classified as environmental data rather than social or economic data.

The observed variables are grouped into six main categories of information disclosures: 'CO2 emissions', 'energy', 'other emissions/ effluents', 'water', 'waste', and 'other', which are examined in more detail later.

4.5.1. Stora Enso

The GRI Content Index was not published together with the reports, but there was a reference in the sustainability report in the form of an URL to the website that contains the index. Stora Enso's compliance to the GRI standards is at the core level. Out of the environmental standards, the only one that Stora Enso does not disclose information on is "302-2 Energy consumption outside of the organization" (Stora Enso, 2018a).

As for the measurement units, Appendix I compiles those identified in the report. To summarize, Appendix I contains a total of 73 variables, of which 30 variables (~41%) are given as relative units of measurement. Out of the remaining 43 variables, one variable

has simply been written out in words without numerical values or clear absolute or relative unit of measurement indicated. Moreover, 33 variables (~45%) are reported in absolute quantities, and 9 variables (~12%) have been expressed in both absolute and relative terms.

In terms of perhaps the most heated category of companies' environmental performance data – namely CO2 emissions – Stora Enso discloses information under 17 variables. Another common environmental data category in sustainability reports is energy, which includes here topics such as electricity, heat, and fuels. Stora Enso makes 14 different energy-related information disclosures. Besides CO2 emissions, Stora Enso discloses information on seven other types of emissions. Moreover, there are ten variables for disclosing information on water. Finally, there is a total of seven variables used to disclose information on waste.

4.5.2. Metsä Group

Metsä Group's GRI Content Index was included in the company's sustainability report (pages 65 – 69). Metsä Group's compliance with the GRI standards is at the comprehensive level and in terms of the environmental standards they disclose information on all standards (Metsä Group, 2018a).

As for the measurement units, as Appendix II summarizes, it seems that there are 63 environmental data disclosures in Metsä Group's sustainability report with approximately half of them (~49%) bundled into one graphic on pages 38 and 39 of the report. Out of the 63 variables, 18 variables (~29%) are reported in relative units of measurement and 39 variables (~62%) are given as absolute quantities. The last six variables are reported as either written descriptions or net values.

In terms CO2 emissions, Metsä Group discloses information under seven variables. There are seventeen information disclosures that could be classified into the category called 'energy'. Fifteen variables are used to report on other emissions than CO2. Moreover,

there are eight variables for disclosing information on water. Only two variables deal with information disclosures on waste.

Out of the case companies, Metsä Group seems to have incorporated the most estimates or pieces of statistics from various authorities into its sustainability report. As the information originally disclosed by the authorities does not equate to Metsä Group's group-level environmental performance, these variables and measurement units are not included in Table 4. Moreover, Metsä Group seems to prefer to split and present its environmental data on sublevels of group-wide performance – be it by business unit or country of operations – to a considerable extent. For example, pages 58 – 61 contain quite comprehensive business unit-specific tables with environmental data. Consequently, due to the decision to compile the tables in this section of the thesis based on group-level environmental data, these pieces of information on the business unit level have been left out from Table 4.

4.5.3. UPM

UPM has produced a separate *GRI Content Index* document, where it identifies where to find the company's GRI disclosures within all the corporate responsibility reporting that the company practices. In this document, UPM also states that its "reporting has been prepared in accordance with the GRI Standards: Core option" (UPM, 2018b: 1). In terms of the environmental standards, UPM does not disclose information on 6 different standards: 301-3 Reclaimed products and their packaging materials, 302-2 Energy consumption outside of the organization, 302-5 Reductions in energy requirements of products and services, 303-3 Water recycled and used, 305-6 Emissions of ozone-depleting substances (OOS), and 306-4 Transport of hazardous waste.

Appendix III presents the variables and units observed in the tables, charts, and graphs of UPM's sustainability report's environmental section. To summarize, it seems that there are 61 environmental data disclosures in UPM's sustainability report with approximately 38 of them (~62%) bundled into one graphic on pages 78 and 79 of the report. Out of the

61 variables, 12 variables (~20%) are reported in relative units of measurement and 48 variables (~79%) are given as absolute quantities, whereas one variable is expressed in both relative and absolute terms.

In terms CO2 emissions, UPM discloses information under seven variables. As for energy, there are ten information disclosures that could be classified into this category. Besides CO2 emissions, the number of variables reporting on other emissions is also ten. Moreover, there are seven variables for disclosing information on water and a total of eight variables to disclose information on waste.

It seems as though UPM makes to most effort to quantify the environmental aspects of its operations into monetary terms, which can be seen from variables reported together with environmental data and in the environmental section of the report, such as "Environmental costs (mainly from effluent treatment and waste management)", " Impact of energy-saving investments", "Indirect upstream: ecosystem services", "Impact valuation of recreational use of forests", "Impact valuation of landfilled waste", "Impact valuation of net carbon binding of forests" and "Impact valuation of GHG emissions".

5. DISCUSSION

To draw some of the rich description from the previous section together, Table 8 below has compiled some of the research findings together.

	Stora Enso	**Metsä Group**	**UPM**
Reporting standard	GRI	GRI	GRI
Compliance with the GRI standards	Core level	Comprehensive level	Core level
Number of GRI 300 environmental standards, on which no information is disclosed	1	0	6
Reported CO2 total (of which fossil CO2 emissions)	~ 25,000,000 tCO2 (45,76%)	~ 9,730,000 tCO2 (~7,1%)	~ 25,110,000 tCO2 (~53,56%)
Sulfur dioxide (SO2) emissions **Nitrogen oxide (NOx) emissions**	2 900 tonnes 10 840 tonnes	900 tonnes 6 200 tonnes	1 200 tonnes 9 300 tonnes
AOX **BOD** **COD** **Nitrogen** **Phosphorus**	296 tonnes Not available 90 tonnes 1.18 tonnes 110 tonnes	397 tonnes 1042 tonnes 42080 tonnes 627 tonnes 52 tonnes	250 tonnes 7300 tonnes 64000 tonnes Not available Not available

Stakeholder inclusiveness	-General stakeholder groups have been named -Advanced description of the materiality process is provided -Number of stakeholders involved in the materiality process is stated -List of engaged NGOs	-General stakeholder groups have been named -Limited description of materiality process is provided -No specific information on engaged stakeholders -No explanation of primary vs secondary stakeholders -Auditor recommends deeper scope of stakeholder dialogue to better understand different stakeholder views	-General stakeholder groups have been named -Description of materiality process is provided -Description of key focus areas with individual stakeholder groups -No specific information on engaged stakeholders -Auditor recommends acknowledging different segments within stakeholder groups and to use a broader range of methods to collect stakeholder feedback
Balance between positive and negative information	-Overwhelmingly positive balance -Notable lack of explicit negative information	-Overwhelmingly positive balance -Notable lack of explicit negative information	-Overwhelmingly positive balance -Notable lack of explicit negative information
Disclosure methods for negative information	-Choosing more favorable perspective/ cropping information to enhance positive image -Extensive use of parenthesis to disclose negative information indirectly -Generalization of the negative impacts -Explicit negative disclosures are notably brief -Implicit disclosure of negative information via made improvements -Use of visual cues to enhance positive image	-Choosing more favorable perspective/ cropping information to enhance positive image -Generalization of the negative impacts - Explicit negative disclosures are notably brief -Implicit disclosure of negative information via made improvements -Use of parenthesis to disclose negative information indirectly -Use of visual cues to enhance positive image	-Choosing more favorable perspective/ cropping information to enhance positive image -Generalization of the negative impacts - Explicit negative disclosures are notably brief -Implicit disclosure of negative information via made improvements -Use of visual cues to enhance positive image

Reporting boundaries	-Seemingly operational control -Somewhat inconsistent application of boundary on joint operations	-Seemingly financial control	- Explicitly stated financial control
Internal organizational factors	-Extensive description of CSR management structures and tools -Advanced description of materiality process -Sustainability criteria part of top management's remuneration -Description of sustainability reporting processes	-Extensive description of CSR management structures and tools -Limited description of materiality process -Sustainability criteria are not explicitly part of top management's remuneration -Little description of sustainability reporting processes	-Extensive description of CSR management structures and tools -Description of materiality process -Sustainability criteria do not seem to be a part of top management's remuneration -Little description of sustainability reporting processes
Comparability	-Varying formats to present e.g. emission and effluent information (greater variance compared to e.g. financial information, such as balance sheets) -Use of slightly different environmental indicators; different amounts of used indicators, variation in complex terminology and e.g. whether indicators are discussed in relative or absolute terms -Different number of environmental standards that are reported upon according to GRI Content Indices -Presumably slightly different calculation methods; lack of transparency on methodology limits comparability in itself -Differences in reporting boundaries; most notably with regards to GHG emission scopes		
Ease of access	All research materials were available on the case companies' public websites with relative ease.		

Table 3: Overview of research findings on individual case companies

5.1. Stakeholder inclusiveness

All three companies have identified and reported their general stakeholder groups. There is also a plethora of examples of collaboration between various actors spread out throughout the examined sustainability reports. All case companies' sustainability reports could also be seen to discuss their materiality processes to some extent.

However, what can be seen to have been described less is the received stakeholder input to the sustainability report and materiality assessments. Stora Enso could be argued to be the most advanced in describing the materiality process and how many as well as which specific parties the company has engaged with. On the other hand, UPM could be seen to showcase and explain stakeholder engagement activities with various stakeholder groups perhaps the most out of the three units of analysis.

On the other hand, the external auditors of the sustainability reports seem to recommend both Metsä Group and UPM to continue to hone their stakeholder engagement. For Metsä Group the auditor recommends the company to deepen its stakeholder dialogue on topics such as the growth of bioeconomy and sustainable use of natural resources "to better understand different stakeholder views" (Metsä Group, 2018a: 64). Moreover, Metsä Group was encouraged to "strengthen the importance of sustainability as a part of all operations and throughout the value chain" (Metsä Group, 2018a: 64).

For UPM, the auditor recommended regarding inclusivity that "the company continues collaborating and sharing knowledge with its stakeholders acknowledging different segments within stakeholder groups" (UPM, 2018a: 98 – formatting added), regarding materiality that "the company continues to enhance the use of different methods for obtaining stakeholder feedback on the materiality analysis as well as on the responsibility focus areas, performance and reporting" (ibid), and regarding responsiveness that UPM would acknowledge changing stakeholder needs and expectations when the company 'enhances its processes' (ibid).

Based on all of this, it can be concluded that all companies have opened their stakeholder engagement processes to some extent to the public. At the same time, however, it could be argued that transparency on stakeholder inclusiveness is limited among the case companies against the academic criteria proposed by Zsóka and Vajkai (2018). Little to no information exists as to who the engaged stakeholders are, what is their expertise and how representative the engaged portion of stakeholders is on the range of opinions and viewpoints that can be attached to the companies' operations. The recommendations provided by the auditors also seem to point for room for improvement with regards to stakeholder engagement and inclusiveness.

5.2. Balance of positive vs. negative information and how negative information is disclosed

In recent years, the trend with regards to reporting companies' financial and non-financial information has been that companies increasingly practice integrated reporting, where all information is disclosed together as one package (Zsóka & Vajkai, 2018). Similar development appears to also have taken place in the three case companies. Considering the premise that all three case companies are listed companies with the purpose of making profits and attracting investment, it could be argued that the purpose of their annual reporting is to account for their performance while trying to appear as an attractive investment target.

This could be argued to especially apply for listed companies. Therefore, it may not be unusual to assume that the companies hope to leave a positive impression of their activities on the reader of the annual review and potential investors. Similarly to how previous academic research has found sustainability reports to contain an abundance of positive information with little information on negative events (Hahn & Lufls, 2013), this predisposition became quickly apparent also to the research at hand soon after the analysis started.

Consequently, most of the reported information could be described as ‘positive’ for the company and the overall balance of ‘positive’ versus ‘negative’ information in the sustainability report to tilt quite overwhelmingly towards positive. The lack of explicit information on adverse impacts and impaired performance could be seen as the main factor driving the balance of information so strongly towards positive. All three reports seem to contain notably reticent, indirect, or non-existent disclosures on negative environmental impacts and performance. The underlying problems and plans of action are not always depicted. This kind of overall information balance could be seen to limit the transparency of the practiced sustainability reporting quite significantly.

The performed analysis on the reporting reveals that the methods used to disclose negative information, or methods that contribute to the lack of explicitly negative information, include: cropping of information or choosing more favorable perspective on the matter, generalization of the negative impacts, keeping disclosures on negative events brief, implicit disclosure via case examples of made investments and improvements, indirect disclosures via the parenthesis method as well as use of visuals to emphasize positive information and to make negative information less noticeable.

To address the research question on how negative information regarding negative environmental impacts and performance is disclosed, what these deployed methods seem to have in common and what the findings seem to point towards is that in the examined sustainability reporting the case companies seem to attempt to avoid direct, explicit disclosure of negative information. Most of the negative information disclosures could be described as indirect. If negative information must be disclosed explicitly, the disclosure is kept brief.

In some instances, the way in which biodiversity and greenhouse gas emissions have been discussed in the examined sustainability reporting could be argued to be particularly lacking from sustainability reporting transparency’s perspective. In a situation where UPM discloses information on hydropower’s adverse impacts on water habitats and advertises to support the restoration of migrating and highly endangered fish stocks,

essential pieces of information could be argued to have been omitted, if UPM is directly responsible for destroying ~55% of the fish stock's reproduction area (North Karelia ELY Centre's Department of fisheries and fishing, n.d.) and does not disclose this information. Between UPM and the company that UPM has partnered with for the restoration project, the two companies' actions had destroyed almost 97% of the fish stock's reproduction area (North Karelia ELY Centre's Department of fisheries and fishing, n.d.). This kind of information disclosures could be seen to represent unduly positive information balance in sustainability reporting that some might even describe as greenwashing. This kind of disclosures can only be seen to negatively influence the credibility of the practiced sustainability reporting and to impair trust towards the company.

5.3. Reporting boundaries

The reporting boundaries for non-financial and GHG information for all case companies seem to be based on the consolidation approach based on control as opposed to equity. In terms of the two control-based consolidation approaches for non-financial information, the more popular alternative seems to be the one based on financial control. Both UPM and Metsä Group appear to follow this approach. UPM has stated to follow this approach explicitly in the GHG inventory document, whereas with Metsä Group this is the interpretation that the thesis has made based on the information disclosed as a part of the sustainability report.

Stora Enso has not stated its consolidation approach explicitly either. Based on the disclosed information it seems the approach may be operational control. Nevertheless, the consolidation approach appears to have been applied inconsistently regardless; considering how the large South American joint operations have been included in financial and social information but excluded from environmental information. Albeit Stora Enso has explicitly and transparently disclosed the decision to exclude joint operations from environmental indicators, this decision seems odd in relation to existing reporting guidelines.

Overall, the thesis considers the observed inconsistency with regards to reporting boundaries to limit the transparency of the practiced sustainability reporting. Similarly, the reports that have not explicitly stated the consolidation approach could be seen to lack transparency in this regard. Finally, it could be seen as desirable and to enhance transparency if the companies were to more explicitly depict the largest possible extent of applicable reporting boundaries in relation to the chosen boundaries.

5.4. Internal organizational factors

All three examined sustainability reports could be seen to incorporate rather extensive and transparent descriptions of how the companies approach managing their sustainability and corporate social responsibility efforts. The reports contain information on corporate governance, on top management's and other organizational entities' roles and responsibilities, on various management tools, documents, policies, guidelines, instructions as well as on corporate strategies, values, material topics, key performance indicators, etc. intended to guide the companies in their daily efforts. Furthermore, all companies seem to describe some elements of their materiality process, albeit to varying degrees.

In terms of top management remuneration, Stora Enso seems to be the only one to explicitly state that specific sustainability criteria has been embedded into the top management's incentive program, whereas the other two case companies' top management seem to be remunerated based on purely strategic and financial objectives. Although, even Stora Enso does not provide more specific information on the sustainability criteria's proportion in the incentive programme other than that the sustainability criteria's proportion is some portion of 30%, which is divided between the sustainability and three other criteria (Stora Enso, 2018d).

Stora Enso appears to be similarly the most transparent in terms of providing information on the processes in place for the practiced sustainability reporting at the company. Stora Enso publishes information on the sustainability indicators both internally and publicly on a quarterly basis. There is some indication that UPM would also report at least some sustainability information internally quarterly, but the sustainability reporting processes seem less ingrained than at Stora Enso. At Metsä Group sustainability reporting appears to only be simply an annual process still and as such perhaps more detached activity in the company's operations.

In the end, the internal organizational factors could be seen as the research variable on which the examined sustainability reporting has been the most transparent overall. All the provided information on the sustainability management could be seen to indicate that CSR efforts are quite well ingrained into the case companies' operations, or at least in the process of becoming more and more embedded. From the incentives' point of view, financial considerations seem to overwhelmingly dominate the decision-making at the companies, albeit in a way this is quite understandable. Finally, the practice of sustainability reporting and its processes seem to have reached an advanced level of integration at Stora Enso, and at least some foothold in the other two companies.

5.5. Comparability

An important consideration with regards to any comparisons between the sustainability reports is that there may be several factors at play which inhibit the drawing of meaningful direct comparisons between the three case companies – even though they operate in the same industry. Such factors could to some extent include e.g. differences in the size of the companies, the resources available for and the maturity of the CSR activities as well as different business and product portfolios. Nevertheless, certain performance comparisons could be argued to be fully justified regardless of any potential differences, and they should be enabled in order for stakeholders to gain more insight into the companies' operations and for stakeholders to be able to make more informed decisions.

However, even though all three case companies follow the GRI reporting guidelines for sustainability reporting, making these justifiable direct comparisons between the case companies is by no means straightforward – limiting the level of transparency into their environmental performance. This seems to be the situation despite of the fact that there were no large deviations between the three units of analysis in terms of which GRI 300 Environmental standards information was disclosed on or not. Already at first sight it could be seen that out of the 30 environmental standards, all three case companies reported information on at least 24 standards. As Table 3 above shows, UPM disclosed the least information in terms of the number of environmental standards.

However, the difference is not as large as it may seem at first, because UPM may have omitted e.g. standard *305-6 Emissions of ozone-depleting substances (OOS)* simply because it is not applicable to UPM's operations. This could be the case since it seems that both Stora Enso and Metsä Group have included this standard in their GRI Content indices but comment on these substances as not applicable for their operations.

Moreover, similarly to UPM, Stora Enso does not seem to report on standard *302-2 Energy consumption outside of the organization* either and even Metsä Group simply comments on the standard in the following manner: "No data available. Most important sources: raw material and product transportation, purchased pigment and chemical production" (Metsä Group, 2018a: 67). Consequently, it could be argued that all three units of analysis are quite on the same line in terms of these two environmental standards.

Out of the other four standards that UPM does not disclose information on, Metsä Group deems two as not applicable to its operations: *302-5 Reductions in energy requirements of products and services* and *306-4 Transport of hazardous waste*. Although, Stora Enso seems to provide some information on the former and Metsä Group does not provide any explanation as to why they are not applicable. On the latter standard Stora Enso provides only qualitative notions on how material flows are managed in the sustainability report and adds in the GRI index that "data not available on internationally exported or imported

hazardous waste by our authorized service providers" (Stora Enso, 2018a: 6).Only the last two environmental standards on which UPM does not report, *301-3 Reclaimed products and their packaging materials* and *303-3 Water recycled and used*, are both essentially standards that Stora Enso and Metsä Group do more reporting on, and there does not seem to be an explanation as to why UPM does not.

Nevertheless, in terms of the comparability of the disclosed information, what seem to be the most significant factors inhibiting direct comparisons are the various ways in which the information is disclosed and a lack of transparency to the methodologies behind some of the numbers provided. There seems to be considerable variability between the examined reports in the terminology, measurement units, and methods of disclosing the information. The number of the environmental performance indicators varies between the case companies as do the reporting formats e.g. in whether an indicator is presented as an absolute or relative amount.

For instance, with regards to CO2 emissions, Stora Enso is the only one to transparently provide a trend for its total fossil carbon footprint (scope 1, 2, and 3) in a single table in the sustainability report. UPM only indicates a trend for scope 1 and 2 emissions in the report, whereas the footprint is essentially presented in a separate document from the report, and in a different format to the one that Stora Enso has deployed. At the same time, Metsä Group also indicates a trend only for scope 1 and 2 emissions in the report but does not have data for scope 3 emissions at all as opposed to the other two companies.

Stora Enso and Metsä Group provide data tables on mill-level emissions, whereas UPM does not. Metsä Group is the one that most clearly indicates the size of its total biogenic CO2 emissions as an absolute amount in the sustainability report, whereas in Stora Enso's report these emissions are discussed in relative terms or as sub-totals, and UPM does not seem to include them at all in the report itself, but in a separate document. Out of the three, only Stora Enso (2018d) claims its biogenic CO2 emissions to be carbon neutral, whereas the other two companies do not take an explicit stance on the matter. The relative CO2 indicator for Stora Enso appears to be "CO2e emissions per saleable tonne of board,

pulp, and paper", for Metsä Group "fossil CO2 emissions per produced ton of pulp" and for UPM "fossil carbon dioxide emissions per tonne of paper".

Metsä Group could be seen to explains some of the coefficients it has used to complete its calculations in the report, but UPM could be argued to be the most transparent overall due to the separate GHG inventory document, which contains information and justifications for GHG accounting decisions that the other two companies do not provide. Stora Enso did not seem to disclose any coefficients behind its calculations and disclosed limited information on e.g. scope 3 emission calculations in relation to UPM.

In comparison, with financial reporting it is possible for the reader to count on finding quite identical income statements, consolidated balance sheets, cash flow statements from each report that are considerably easier to compare between each other than the variety evident in non-financial reporting's charts and tables.

For example, in terms of the charts presenting emissions to air, UPM's (2018a) chart uses the term 'acidifying flue gases' to describe sulfur dioxide and nitrogen oxide emissions, whereas Metsä Group's (2018a) chart for sulphur and NOx emissions is called 'acidification (SO2 equivalent tons)', and Stora Enso does not seem to have a chart for these emissions at all. Moreover, UPM's (2018a) chart consists of stacked bars that describe sulfur dioxide and nitrogen oxide emissions totals while also the annual paper and chemical pulp production amounts have been included as a line on the chart. Metsä Group's (2018a) chart also has stacked bars but instead of showcasing sulphur emission totals against NOx emission totals, the chart describes how these total emissions are divided between Metsä Group's business units.

In addition, Metsä Group's (2018a) chart does not include the total production volumes. Therefore, these emission charts could be deemed to be considerably different from each other. Most of the charts and tables in sustainability reporting also seem small with limited information value – especially if compared to financial information tables.

For some reason, the non-financial information charts often seem to act more indicative of a trend or magnitude of operations rather than providing more specific information. Admittedly, with closer examination it is possible to find the SO2 and NOx totals for all three companies from the sustainability reports (see table 3). However, this information can be seen to be located in slightly different parts of the reports and in different formats, i.e. whether the information is presented in a graphic, chart, table, or simply in a body of text in the report.

Furthermore, for some of the other information, such the effluents to water (see AOX, BOD, COD, Nitrogen, and Phosphorus in table 3), not all case companies seem to report information on all types. One explanation for this can of course be that the excluded effluent simply is not part of the company's operations. In such circumstances there is naturally no need to report any information on such an indicator.

Nevertheless, as can be seen from Table 3, e.g. Stora Enso (2018d) does not report any volumes of Biological Oxygen Demand (BOD) released from its operations, but in the '*Environmental incidents in 2018*' table of the sustainability report Stora Enso (2018d) states that Heinola fluting mill's monthly limits for effluent containing biological oxygen demand (BOD), among other things, were exceeded in May, as can be seen from Figure 8 of the thesis.

Consequently, BOD appears to indeed be a part of Stora Enso's operations. However, as mentioned there is no information on the extent to which the effluent is relevant to Stora Enso's operations and there is no justification for the lack of information either. Moreover, it could be argued that an average reader may not necessarily be expected to even know what BOD is, what its effects are, or how it relates to Stora Enso's operations.

Nevertheless, since that Stora Enso (2018d) does not provide information on this effluent, it is not possible to evaluate the released amount to those of the other companies. One might even accidentally assume that BOD is not related to Stora Enso's operations in any way, even though it clearly appears to be. In part, this problem could be seen to boil down

to the fact that much of this information is so advanced and industry-specific that it is not a part of general education or knowledge and an average person cannot be expected to know what this means. Therefore, this could be argued to underscore the importance of sustainability reporting transparency and the reporting company's responsibility to try to make the information more approachable, explicit, and easier to understand.

Overall, the lack of comparability could be argued to limit transparency, because it is more difficult to evaluate an individual company's performance. To the research question regarding how comparable the disclosed information is between the sustainability reports of large companies of the same industry, with similar geographical operating areas, and with the same GRI reporting guideline, the answer appears to be that despite of the commonalities, the comparability is limited. Albeit information is being disclosed on same topics, it could be argued that especially without subject matter expertise all the variability in how the information presented and the lack of transparency on various background variables diminishes the possibilities to draw comparisons on the disclosed information in an easy, quick, and straightforward manner.

6. CONCLUSION

6.1. Research summary

Based on the conducted literature review, there seems to exist a debate in the academic literature over the outright usefulness of the sustainability reporting practice and it has been deemed "difficult to say anything meaningful about a company's sustainability performance on the basis of the sustainability report" (Thijssens et al., 2016: 99). The thesis found this to be an area of concern that should be improved upon. The notion that companies' sustainability reporting does not always seem to depict an accurate image of the companies' societal and environmental impacts formed the research problem for the thesis.

This study puts forward a proposition that sustainability reporting has the potential to serve as a powerful tool to aid sustainable development of organizations and societies by making organizations more accountable of their environmental, and social, impacts. In addition, the thesis further proposes that the usefulness of sustainability reporting is dependent on the quality of the practiced reporting, for which the thesis considers transparency to be an important determinant. The described research problem and theoretical propositions prompted the study to devise and implement a theoretical framework from the academic literature with which the thesis set out to explore and describe sustainability reporting transparency among some of the front-runners of sustainability reporting in Finland, which was identified as an understudied research context on this topic.

Consequently, this study has examined the sustainability reporting practices of three case companies in the Finnish forest, paper and pulp industry to answer research questions regarding what is the current level of transparency against selected academic criteria among the front-runners of sustainability reporting on their environmental impacts, how companies approach the disclosure of negative environmental information in relation to their operations, and how comparable the disclosed information is between the

sustainability reports of companies from the same industry, with similar geographical operating areas and the same sustainability reporting guideline.

The act of publishing a sustainability report in itself is a sign of some degree of transparency that could be characterized as positive and not without merit. Moreover, as Zsóka and Vajkai (2018) suggest, pitting the amount of information provided against the user-friendliness of the information is likely to remain a constant struggle, and companies need to constantly evaluate what is expedient and appropriate. Even the current length of sustainability reports could be considered as rather long. Nevertheless, what this case on some of the front-runners of sustainability reporting seems to indicate is that the practice has still room to continue to develop in terms of transparency.

This thesis found the case companies' sustainability reporting to lack transparency particularly in terms of the balance of the provided information, or more specifically the lack of disclosure on negative environmental impacts and performance. In addition, some lack of transparency was observed on stakeholder engagement as well as the organizational and operational boundaries deployed for the reporting. The reporting was found to be most transparent on internal organizational factors, albeit there was somewhat limited information on sustainability reporting processes within the companies. The varying ways in which non-financial information is presented in the examined sustainability reporting was also considered to limit transparency through reduced comparability of the reports.

In conclusion, the described research problem of companies' sustainability reporting not always seeming to depict an accurate image of the companies' societal and environmental impacts could in fact be seen to occur also in the examined units of analysis to some extent. The findings point to a lack of transparency, which especially deals with skewed information balance and a lack of comparability, as one possible explanation for the described research problem as well as the debate in the literature on the usefulness of the practice. As such, the thesis could be found to have addressed the research problem and

to have contributed to the existing literature via its theoretical framework and findings on sustainability reporting transparency.

6.2. Implications

The findings of this study from the Finnish forest, paper, and pulp industry could be argued to illustrate that considerable lack of transparency can still be seen to permeate the sustainability reporting practice with regards to companies' environmental impacts and performance even among the front-runners of sustainability reporting. Moreover, if this is the level of sustainability reporting transparency, and quality, among companies that have been involved with the practice for a relatively long time, companies that come from a highly environmentally conscious background, and have in many ways gained recognition even on a global scale for their reporting and environmental action, then what kind of an indication might this provide of the overall level of global sustainability reporting transparency and quality?

Even though all three examined case companies have clearly taken applaudable action to both mitigate their negative environmental impacts and create sustainable value, from sustainability reporting transparency's point of view an argument could be put forward that there is still room to make sustainability reporting more transparent especially in terms of the balance of disclosed information. In all the examined sustainability reports the companies appear to proudly declare their achievements and to mitigate their shortcomings in order to appear desirable; using formatting, careful phrasing, and other methods to emphasize the former and to play down the latter. However, it could be argued that in addition to proudly presenting one's achievements, companies should not shy away from discussing their shortcomings or what there is left to improve upon to such a considerable extent.

As for example UPM's (2018a) disclosure on Lake Saimaa's highly endangered salmon perhaps best illustrates, sustainability reporting even among the front-runners of the

practice may not always be completely transparent or depict an accurate description of the reporting organization's impacts and performance. On the contrary, it seems that there may be some very essential pieces of information omitted from sustainability reports. The study's findings could therefore be seen to support the research proposition that transparency is an important determinant of sustainability reporting quality and that lack of transparency contributes to the identified research problem.

Overall, the disclosure of negative information on environmental impacts and performance seems to be a difficult topic for companies. The amount of explicit negative information could be described as minimal and the quality as variable. It seems that some negative information has outright been omitted from the reports.

Consequently, the question for practitioners and academics alike seems to take the form of how companies could be helped to also disclose negative information more readily in an upright manner. As Zsóka and Vajkai (2018) suggest, it would increase the transparency and comprehensibility of sustainability reports if companies were to clearly show e.g. which stakeholders they have received input from, or how they measure given indicators. A few additional informative tables could already be seen to achieve a lot in terms of increased transparency.

If more balanced reporting is not achieved, or the practiced evolves to possess even more characteristics of marketing rather than accounting of non-financial performance, this could be seen to lend support to the views present in the literature of sustainability reporting being a mere PR stunt. This, in turn, may reduce the credibility of the practiced reporting and cause stakeholders to lose trust in companies' ability to do business responsibly. Based on the findings, sustainability reporting transparency needs to be enhanced. Otherwise, the practice of sustainability reporting is in danger of presenting a distorted view of the company as an investment target, of the company's long-term business continuity, and of the company as a member of the society, which will most likely cause a backlash on the companies themselves via degraded trust, credibility, and reputation eventually.

This thesis argues that the observed level of transparency in this case does not yet unlock the true potential of sustainability reporting as a tool to help solve the big questions of our time and to aid investors, consumers, and other stakeholders make fully informed decisions, or to enable full corporate accountability. The findings also point to a limited capacity of the modern sustainability reporting practice to enable meaningful comparisons even between companies from the same industry and a similar context. This could be taken as an indication that comparing the environmental performance of companies' from more diverse contexts may be even more troublesome.

The study proposes this limited comparability and transparency of modern sustainability reporting to be due to its voluntary and relatively unstandardized nature – at least in comparison to financial information. Consequently, in relation to the debate identified in the literature with regards to how voluntary sustainability reporting should be, this thesis advocates for an increased degree of standardization for sustainability reporting terminology and methodology as well as for more regulation on what kind of information sustainability reports should disclose and in what format.

The idea of integrated reporting is commendable in the sense that only one report could provide an overview of all aspects of a company's operations. There are many positive elements to the current reporting format – starting from the fact that the companies could be argued to have become more aware of their environmental impacts. Companies could be argued to engage stakeholders more and naturally all the concrete steps that have been taken to address existing problems can be seen to represent positive development.

It is great that many companies have taken up the practice of sustainability reporting and that the practice has reached the current level from a voluntary basis. However, is this as far as the practice can evolve on its own? Because of the voluntary nature of the practice and due to the fact that sustainably reports currently represent essentially companies' own accounts on topics they themselves (in the end) deem material, in the current format sustainability reporting transparency and quality seem to depend considerably on the reporting company and the ethics at play.

After all, companies do not tend to criticize themselves in their own annual reports. Neither can they realistically be expected to voluntarily do so, if the purpose of annual reporting for listed companies is to attract investment, maintain legitimacy and support profitable business. When there is pressure to appear attractive as an investment target, the temptation to provide an overly imbalanced account of one's environmental and societal impacts and performance may be too large to resist.

The current reporting standards could be seen to leave a surprisingly considerable degree of leeway in terms of what information is disclosed and how, as the study's findings demonstrate in line with previous academic research. The impetus for a more objective, balanced, and transparent reporting may need to come from somewhere else than the companies themselves for the practice to also spread wide and fast. With a certain degree of mandatory aspects to the reporting, even more companies could be prompted to start on this journey as well.

How sustainability reporting could be made more mandatory and standardized could be sought after with a mix of legislation and stricter industry standards. A more voluntary route could be for the companies from the same industry to gather and agree upon the use of standardized non-financial indicators. The forums for discussion should already be in place, all that would be needed is to agree on a calculation methods and terminology to be used.

Moreover, by doing so companies might be able to influence the future standards for a wider context as well beyond their own industry or Finland. Regrettably, one reason why companies might not want to come together to agree on a set reporting format is because doing so could put one or two of them initially at a disadvantage compared to the best performer. On the other hand, with the current practice the companies could even be seen to evade fair and open competition to some extent.

In a sense, the thesis advocates sustainability reporting to transition towards financial reporting. For instance, carbon accounting could benefit from regulation similar to that of

financial accounting and greenhouse gas reporting to be likened to monetary reporting. Significant, relatively easily calculable and verifiable emission categories, such as energy use -based greenhouse gas emissions, should be reported together with financial figures in a standardized and easily comparable format. This would enhance sustainability reporting transparency and quality as well as competition on non-financial performance.

Nevertheless, until something along these lines can be seen to take place, it seems that especially whenever greenhouse gas emissions are discussed, one should be careful to pay attention to the scope in question and possible cropping of information. Furthermore, critical thinking, due diligence, and an eye for details in what terminology is being used can be highly recommended. However, the problem with all of this could be seen to be that the phenomena and terminology involved are complicated, of which most people may have a poor grasp, and not enough patience to delve into them deeply.

The theoretical framework developed for the study should help practitioners to evaluate the extent of their own company's transparency, or what sort of matters to consider if the company is only starting to practice sustainability reporting. Also other stakeholders may benefit from applying the framework's criteria to examine sustainability reporting. For the examined case companies, the study's findings could be seen as stakeholder input for their CSR activities. For investors, the findings demonstrate how it may be difficult to evaluate companies' non-financial performance and value creation even based on the provided sustainability information and how it may pay off to apply critical thinking and to familiarize oneself with the provided information beyond simply glancing at the material in order to make more informed decisions.

For managers who want to develop their sustainability reporting in earnest, the study's findings can demonstrate how despite of good intentions, there can be some pitfalls associated with sustainability reporting. For regulators and countries with ambitious sustainability goals, the study's findings could be seen as a suggestion on how to support the attainment of the ambitious targets, if not even as a call to action. The findings may also help consumers become more aware of the nature of the current sustainability

reporting practice and help them apply critical thinking to make informed purchasing decisions.

6.3. Limitations of study

This study is a Master's Thesis and as such its resources nor level of analysis are comparable to a published peer-reviewed research article. With the quite vast number of pages and documents to cover as the data corpus, the possibility cannot completely be ruled out that the research has inadvertently failed to take note of something in the coding process. Nevertheless, all research materials have been examined dozens of times and the study has used data triangulation, thick description of the research materials, information on key decisions and influencing factors embedded in the research as well as publicly available documents to enhance the study's credibility, transferability, dependability, and confirmability respectively. Moreover, a certain degree of the sustainability reporting's transparency could be argued to be based upon the overall image and associations that the reporting conveys and the researcher interprets in relation to various topics. The research has pursued the principles of qualitative research in authenticity and trustworthiness.

As a case study, the thesis cannot make statistical generalizations of its findings (Yin, 2018). The examined research data essentially consists of three case companies' sustainability reporting, and the findings may not be representative of nor can generalizations necessarily be made of the entire forest, paper, and pulp industry, or about sustainability reporting as a general practice across various industries, whole of Finland, or globally. The forest, paper, and pulp industry may also possess some unique characteristics that are not present in other industries.

However, the thesis could be seen to have contributed to the literature via this case from the Finnish context. Moreover, the theses views transparency as a continuum. Instead of attempting to define precise levels of transparency e.g. in numerical format, the thesis considers the examined sustainability reports' transparency against the theoretical

framework's research variables and their standards described in section 2.3 of the thesis. After all, the purpose of this study is to explore and describe the state of transparency in Finnish sustainability reports against the selected criteria, and due to the explorative and descriptive nature of the study does not require as strictly conclusive results as perhaps some other research dynamics.

Another limitation to the study and its findings could be that the research data consists essentially of sustainability reports only from one point in time, namely the year of 2018. A longitudinal basis might have benefited the study in that examining sustainability reports from several years could have enabled the thesis to be able to draw deeper and more valid insights. However, considering that this is a Master's Thesis with the associated resources, the chosen approach could be considered appropriate as extending the scope further would not have been feasible and the reports for 2018 were the latest to have been published at the time work on the thesis started.

Finally, the appropriateness of the selected research variables to explore the sustainability reports' transparency could be questioned. The thesis acknowledges that some of the standards associated to the theoretical framework's research variables may be advanced or "higher" in relation to the some of the current sustainability reporting practices that have become commonplace. As such, the findings could partly be considered as skewed.

However, all applied research variables have been derived from academic literature and some fundamental notions regarding transparency include the idea that stakeholders should have visibility to all of companies' activities and nothing should be hidden from view. Even though this degree of transparency may not be possible to achieve in practice, it could be argued that sustainability reporting as a business practice has not reached the stage of maturity but continues to develop. Based on the reviewed literature, the practice also needs to continue to develop to be useful. Furthermore, the described standards should be feasible to achieve in practice.

6.4. Suggestions for further research

For further research on sustainability reporting transparency, the thesis proposes academics to take up longitudinal studies for examining various aspects of companies' sustainability reporting practice, such as consistency of reporting, over time. Do for example personnel changes, economical fluctuations, or certain performance parameters influence sustainability reporting over time, and if yes, to what extent? Moreover, more studies could be accumulated both on sustainability reporting in the Finnish context as well as in a larger variety of industries. Research could also examine sustainability reporting transparency in organizations of different sizes and in the non-profit sector or public sectors to identify possible unique characteristics, similarities, and differences. The concept of transparency in the sustainability reporting context as well as a framework for evaluating transparency could also be investigated further. The potential rise of more corporate responsibility legislation could in addition present interesting avenues for further research.

REFERENCES

Adams, C. (2002) 'Internal organisational factors influencing corporate social and ethical reporting; beyond current theorising'. *Acc. Audit. Acc. J*. 15, 223-250.

Antonini, C. & Larrinaga, C. (2016) 'Planetary Boundaries and Sustainability Indicators. A Survey of Corporate Reporting Boundaries'. *Sustainable Development*, 25: 123–137.

Banzal, P. & Song, H-C. (2017). 'Similar but not the same: Differentiating corporate sustainability from corporate responsibility'. *Academy of Management Annals*, 11, (1): 105-149.

Baron, R. (2014) 'The Evolution of Corporate Reporting for Integrated Performance: Background paper for the 30th Round Table on Sustainable Development'. OECD Headquarters: Paris, France.

Beare, D., Buslovich, R. & Searcy, C. (2013) 'Linkages between Corporate Sustainability Reporting and Public Policy'. *Corporate Social Responsibility and Environmental Management*, 21: 336–350.

Bebbington, J., Higgins, C. & Frame, B. (2009) 'Initiating sustainable development reporting: evidence from New Zealand'. *Accounting, Auditing & Accountability Journal*, 22: 588-625.

Blackrock (n.d.). '*Sustainability as BlackRock's New Standard for Investing*'. Available from: https://www.blackrock.com/fi/yksityinen-sijoittaja/blackrock-client-letter [Accessed on 17 May 2020].

Braun, V. & Clarke, V. (2006) 'Using thematic analysis in psychology'. *Qualitative Research in Psychology*, 3:2, 77-101.

Bryman, A. & Bell, E. (2007) *Business research methods*. New York: Oxford University Press.

Cerin, P. (2002) 'Communication in corporate environmental reports'. *Corporate Social Responsibility and Environmental Management*, 9: 46–65.

Chen, S. & Bouvain, P. (2009) 'Is corporate responsibility converging? A comparison of corporate responsibility reporting in the USA, UK, Australia, and Germany'. *Journal of Business Ethics*, 87: 299-317.

Cho, C. H., Laine, M., Roberts, R. W. & Rodrigue, M. (2016) 'The Frontstage and Backstage of Corporate Sustainability Reporting: Evidence from the Arctic National Wildlife Refuge Bill'. *Journal of Business Ethics*, 152: 865–886.

Clarkson, P.M., Overell, M.B. & Chapple, L. (2011) 'Environmental reporting and its relation to corporate environmental performance'. *Abacus: A Journal of Accounting Finance and Business Studies*, 47: 27-60.

Coffey, A. (2014) 'Analysing documents'. In: Flick, U. (ed.) *The SAGE Handbook of Qualitative Data Analysis*. Online: SAGE Research Methods database. Ch.25

Crawford, E.P. & Williams, C.C. (2011) 'Communicating Corporate Social Responsibility through Nonfinancial Reports'. In: Ihlen, Ø., Bartlett, J.L., and May, S. *The Handbook of Communication and Corporate Social Responsibility*. [Online]: John Wiley & Sons, Inc.

Criado-Jiménez, I., Fernández-Chulián, M., Husillos-Carqués, F.J. & Larrinage-González, C. (2008) 'Compliance with mandatory environmental reporting in financial statements: the case of Spain (2001-2003)'. *Journal of Business Ethics*, 79: 245-262.

Daub, C.H. (2007) 'Assessing the Quality of Sustainability Reporting: An Alternative Methodological Approach'. *Journal of Cleaner Production*, 15: 75–85.

Delmas, M., Montes-Sancho, M. J., Shimshack, J. P. (2010) 'Information disclosure policies: evidence from the electricity industry'. *Economic Inquiry*, 48, 483–498.

European Union. *Directive 2014/95/EU of the European Parliament and the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1592753451160&uri=CELEX:32014L0095 [Accessed on 21 June 2020].

Dudovskiy, J. (2019) '*Exploratory Research*'. Available from: https://research-methodology.net/research-methodology/research-design/exploratory-research/ [Accessed on 24 June 2020].

Dudovskiy, J. (n.d.) '*Descriptive Research*'. Available from: https://research-methodology.net/descriptive-research/ [Accessed on 14 March 2019].

Eriksson, P., & Kovalainen, A. (2008). *Introducing Qualitative Methods: Qualitative methods in business research*. London: SAGE Publications Ltd. doi: 10.4135/9780857028044

European Commission (n.d.) '*Non-financial reporting*'. Available from: https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en [Accessed 20 April 2019].

FIBS (2016). *'Stora Enso voitti vuoden 2016 vastuullisuusraportointikilpailun pääpalkinnon*'. Available from: https://www.mynewsdesk.com/fi/pressreleases/stora-enso-voitti-vuoden-2016-vastuullisuusraportointikilpailun-paeaepalkinnon-1659331 [Accessed on 22 May 2020].

FIBS. (2018). '*Nokialle vuoden 2018 raportointikilpailun voitto*'. Available from: https://www.fibsry.fi/ajankohtaista/3412/ [Accessed on 22 May 2020].

FIBS (2019). '*Suomen parhaissa vastuullisuusraporteissa vahva suunta kohti vähähiilistä taloutta*'. Available from: https://www.fibsry.fi/ajankohtaista/suomen-parhaissa-vastuullisuusraporteissa-vahva-suunta-kohti-vahahiilista-taloutta/ [Accessed on 22 May 2020].

Finland. *Accounting Act (1336/1997)*. Available from: https://finlex.fi/en/laki/kaannokset/1997/en19971336 [Accessed on 17 May 2020].

Finnish Environment Institute. (2015a) '*Natural resource use high in Finland*'. Available from: https://www.ymparisto.fi/en-US/Maps_and_statistics/The_state_of_the_environment_indicators/Natural_resources/Natural_resource_use_high_in_Finland(28228) [Accessed on 3 May 2020].

Finnish Environment Institute. (2015b) '*Every tenth species in Finland threatened*'. Available from: https://www.ymparisto.fi/en-US/Maps_and_statistics/The_state_of_the_environment_indicators/Biodiversity/Every_tenth_species_in_Finland_threatene(28273) [Accessed on 3 May 2020].

Finnish Environment Institute. (2015c) '*The decline in species continues in almost all habitats*'. Available from: https://www.ymparisto.fi/en-US/Maps_and_statistics/The_state_of_the_environment_indicators/Biodiversity/The_decline_in_species_continues_in_almo(28289) [Accessed on 3 May 2020].

Finnish Environment Institute. (2015d) '*The loss of biodiversity continues*'. Available from: https://www.ymparisto.fi/en-US/Maps_and_statistics/The_state_ of_the_environ-ment_indicators/Biodiversity [Accessed 3 May 2020].

Finnish Forest Industries Federation. (2018) '*Biggest forest industry companies globally*'. Available from: https://www.forestindustries.fi/statistics/forest-industry/ [Accessed on 14 March 2019].

Finnish Ministry of Economic Affairs and Employment (2019). '*A judicial analysis of CSR regulation to be launched*'. Available from: https://valtioneuvosto.fi/artikkeli/-/asset_publisher/1410877/yritysvastuulain-selvitys-kaynnistyy?_101_INSTANCE_LZ3RQQ4vvWXR_languageId=en_US [Accessed on17 May 2020].

Fortanier, F., Kolk, A. & Pinkse, J. (2011) 'Harmonization in CSR reporting: MNEs and global CSR standards'. *Management International Review*, 51: 665-696.

Francis, J. (2018). '*Drought hits production at Stora Enso mill*'. Available from: https://www.printweek.com/news/article/drought-hits-production-at-stora-enso-mill [Accessed on 23 February 2020].

Good Country Index. (2018) '*The Good Country Index, a new way of looking at the world*'. Available from: https://www.goodcountryindex.org/about-the-index [Accessed 14 March 2019].

GRI (n.d.) *'GRI Standards*'. Available from: https://www.globalreporting.org/information/sustainability-reporting/Pages/gri-standards.aspx

Hahn, R. & Kühnen, M. (2013) 'Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research'. *Journal of Cleaner Production*, 59: 5-21.

Hahn, R. & Lülfs, R. (2014) 'Legitimizing Negative Aspects in GRI-Oriented Sustainability Reporting: A Qualitative Analysis of Corporate Disclosure Strategies'. *Journal of Business Ethics*, 123, (3): 401-420.

Herzig, C. & Schaltegger, S. (2006) 'Corporate Sustainability Reporting'. In: Schaltegger, S., Bennett, M., Burritt, R. (eds) *Sustainability Accounting and Reporting*. Dordrecht: Springer.

Holder-Webb, L., Cohen, J.R., Nath, L. & Wood, D. (2009) 'The supply of corporate social responsibility disclosures among U.S. firms'. *Journal of Business Ethics*, 84: 497-527.

Holtsmark, B. (2015) 'A comparison of the global warming effects of wood fuels and fossil fuels taking albedo into account'. *GCB Bioenergy*, 7: 984-997.

Hrasky, S. (2012) 'Carbon footprints and legitimation strategies: symbolism or action?'. *Accounting, Auditing & Accountability Journal*, 25 (1): 174-198.

Hyvärinen, E., Juslén, A., Kemppainen, E., Uddström, A. & Liukko, U.-M. (2019) *The 2019 Red List of Finnish Species*. Helsinki: Finnish Ministry of the environment & Finnish Environment Institute.

IEA Bioenergy. (n.d.). '*Fossil vs biogenic CO2 emissions*'. Available from: https://www.ieabioenergy.com/iea-publications/faq/woodybiomass/biogenic-co2/ [Accessed on 29 March 2020].

IFRS (n.d.). '*IFRS 10 Consolidated Financial Statements*'. Available from: https://www.ifrs.org/issued-standards/list-of-standards/ifrs-10-consolidated-financial-statements/ [Accessed on 1 February 2020].

IPBES (2019) *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. Bonn, Germany: IPBES secretariat.

IPCC (2018) *Special Report on Global Warming of 1.5 °C*. Incheon, South Korea: Intergovernmental Panel on Climate Change.

Ivösjökomittén (n.d.1) '*Om Ivösjön*' (About Lake Ivö). Available from: http://www.ivosjo.com/om-oss/ [Accessed 23 February 2020].

Ivösjökommittén (n.d.2). '*Om kommittén*' (About Lake Ivö Committee). Available from: http://www.ivosjo.com/om-kommitten/ [Accessed 23 February 2020].

Ivösjöns fiskevårdsförening. (2017) '*Fishing rules*'. Available from: https://ivosjon.com/fiskeregler/fishing%20rules.html [Accessed 23 February 2020].

Kenton, W. (2018) '*Stockholder Voting Right Defined*'. Available from: https://www.investopedia.com/terms/v/votingright.asp [Accessed on 2 February 2020].

KPMG (2002) *KPMG International Study of Corporate Sustainability Reporting 2002*. Amsterdam: Graduate Business School.

Liikennefakta.fi (2020) *Hiilidioksidipäästöt* (Carbon dioxide emissions). Available from: https://www.liikennefakta.fi/ymparisto/henkiloautot/hiilidioksidipaastot [Accessed on 1 March 2020].

Lindén, J. & Ottosson, L. (2019, 5 Nov.) 'Ivösjön ett år efter extremtorkan' (Lake Ivö one year after extreme drought). *Kristianstadsbladet*. p.10. Available from: https://etidning.kristianstadsbladet.se/653/eKb/255907/2019-11-05/r/6

Liu, W., Zhang, Z., Xie, X., Yu, Z., von Gadow, K., Xu, J., Zhao, S. & Yang, Y. (2017). 'Analysis of the Global Warming Potential of Biogenic CO2 Emission in Life Cycle Assessments'. *Scientific Reports*. DOI: 10.1038/srep39857

M&M. (2012). '*Suomen paras vastuullisuusraportti on Fortumin*' (Finland's best sustainability report belongs to Fortum). Available from: https://www.marmai.fi/uutiset/suomen-paras-vastuullisuusraportti-on-fortumin/5de90812-9b93-31b0-9fce-a344f35e0d21 [Accessed on 31 May 2020].

Massa, L., Farneti, F., & Scappini, B. (2015) 'Developing a sustainability report in a small to medium enterprise: process and consequences'. *Meditari Accountancy Research*, 23: 62-90.

Matisoff, D. C. (2013) 'Different rays of sunlight: Understanding information disclosure and carbon transparency'. *Energy Policy*, 55: 579–592.

Metsä Board (2019) '*Metsä Board awarded the EcoVadis Gold rating for the third consecutive year*'. Available from: https://www.metsaboard.com/Media/Product-news/Pages/Metsa-Board-is-awarded-the-EcoVadis-Gold-rating-for-the-third-consecutive-year.aspx [Accessed on 31 May 2020].

Metsä Group (2018a) *Metsä Group Sustainability Report 2018*. Available from: www.metsagroup.com/CSR.

Metsä Group (2018b) *Metsä Group Annual Review 2018*. Available from: www.metsagroup.com.

Metsä Group (2019) '*Metsä Group's Pulp and Sawn timber industry recogni-zed for outstanding achievement in sustainability*'. Available from: https://www.metsagroup.com/en/media/all-news/Pages/News.aspx?EncryptedId=1615C6AE082D6D7B&Title=MetsaGroupsPulpandSawntimberindustryrecognizedforoutstandingachievementinsustainability [Accessed on 31 May 2020].

Metsä Group (2020) '*Metsä Board named on CDP 'A List' for leading effort against climate change for the fourth consecutive year*'. Available from: https://www.metsaboard.com/Media/Product-news/Pages/Metsa-Board-named-on-CDP--A-List-for-leading-effort-against-climate-change.aspx [Accessed on 31 May 2020].

Metsä Group (n.d.) '*Metsä Group recognized for transparency and high-level performancein the WWF's Environmental Paper Company Index*'. Available from: https://www.metsagroup.com/en/media/Pages/Case-WWF%E2%80%99s-Environmental-Paper-Company-Index.aspx [Accessed on 31 May 2020].

Metsä Tissue (2020) '*Metsä Tissue awarded the EcoVadis Platinum rating for its sustainability performance*'. Available from: https://news.cision.com/metsa-tissue/r/metsa-tissue-awarded-the-ecovadis-platinum-rating-for-its-sustainability-performance,c3095436 [Accessed on 31 May 2020].

Mishra, P. & Schmidt, G. B. (2018) 'How can leaders of multinational organizations be ethical by contributing to corporate social responsibility initiatives? Guidelines and pitfalls for leaders trying to do good'. *Business Horizons*, 61: 833—843.

Motiva (2019) '*Vedenkulutus*' (Water consumption). Available from: https://www.motiva.fi/koti_ja_asuminen/hyva_arki_kotona/vedenkulutus [Accessed on 8 March 2020].

North Karelia ELY Centre's Department of fisheries and fishing (n.d.) '*Avainalueet*' (Key areas). Available from: http://www.jarvilohi.fi/fi/kantojen+hoito/lajikohtaiset+toimenpiteet/jarvilohi/avainalueet/ [Accessed on 22 May 2020].

Official Statistics of Finland (OSF) (2018) Industrial output. Helsinki: Statistics Finland. Accessed from: http://www.stat.fi/til/tti/tie_en.html [Accessed 14 March 2019]. ISSN=2489-3226.

Persian, C. (2019, 12 Nov.) 'Största sjön behöver hjälp för att må bättre' (The largest lake needs help to feel better). *Kristianstadsbladet*. p.10. Available from: https://etidning.kristianstadsbladet.se/653/eKb/256879/2019-11-12/r/6

PricewaterhouseCoopers (PWC) (2016) '*Global Forest, Paper & Packaging Industry Survey: 2016 edition survey of 2015 results*'. Available from: https://www.pwc.com/gx/en/industries/forest-paper-packaging/publications/forest-paper-and-packaging-survey-2016.html [Accessed on 20 March 2018].

Rasche, A., Morsing, M. and Moon, J. (2017) *Corporate social responsibility: Strategy, communication, governance* (eds.). Cambridge: Cambridge University Press.

Rassi, P., Hyvärinen, E., Juslén, A. & Mannerkoski, I. (2010) *The 2010 Red List of Finnish Species*. Helsinki: Finnish Ministry of the environment & Finnish Environment Institute.

Rawlins, B. (2009). Give the Emperor a Mirror. Toward Developing a Stakeholder Measurement of Organizational Transparency. *Journal of Public Relations Research*, 21 (1), 71–99.

Roca, L. C. & Searcy, C. (2012) 'An Analysis of Indicators Disclosed in Corporate Sustainability Reports'. *Journal of Cleaner Production*, 20, (1): 103–118.

Shimshack, J. P., Ward, M. B. & Beatty, T. K. M. (2007) 'Mercury advisories: information, education, and fish consumption'. *Journal of Environmental Economics and Management*, 53: 158–179.

Sitra (2018) '*Keskivertosuomalaisen hiilijalanjälki*' (An average Finn's carbon footprint). Available from: https://www.sitra.fi/artikkelit/keskivertosuomalaisen-hiilijalanjalki/ [Accessed on 1 March 2020].

Smith, Gambrell, and Russell. (n.d.) '*Separate Reporting of Biomass GHG Emissions Required by EPA*'. Available from: https://www.sgrlaw.com/separate-reporting-of-biomass-ghg-emissions-required-by-epa/ [Accessed on 15 June 2020].

Statistics Finland (2019) '*Greenhouse gas emissions increased, emission allocation exceeded*'. Available from: https://www.stat.fi/til/khki/2018/khki_2018_2019-05-23_tie_001_en.html [Accessed on 1 March 2020].

Stora Enso (2018a) *Stora Enso GRI Index 2018*. Available from: https://www.storaenso.com/-/media/Documents/Download-center/Documents/Annual-reports/2018/STORAENSO_GRI_2018.ashx [Accessed 4 January 2020].

Stora Enso (2018b) '*Stora Enso's Sustainability Report was ranked best by Finnish financial journalists*'. Available from: https://www.storaenso.com/en/newsroom/regulatory-and-investor-re-leases/2018/11/stora-ensos-sustainability-report-was-ranked-best-by-finnish-financial-journalists [Accessed on 14 March 2019].

Stora Enso (2018c) '*Stora Enso's Sustainability Report ranked among top ten globally*'. Available from: https://www.storaenso.com/en/newsroom/regulatory-and-investor-releases/2018/10/stora-ensos-sustainability-report-ranked-among-top-ten-globally [Accessed on 14 March 2019].

Stora Enso (2018d) *Sustainability – Part of Stora Enso's Annual Report 2018*. Available from: https://www.storaenso.com/en/download-centre

Stora Enso (2018e) *Interim Report Q3: January – September 2018*. Available from: https://www.storaenso.com/en/download-centre

Stora Enso (2018f) *Governance – Part of Stora Enso's Annual Report 2018*. Available from: https://www.storaenso.com/en/download-centre

Stora Enso (n.d.1) '*Montes del Plata Mill*'. Available from: https://www.storaenso.com/en/about-stora-enso/stora-enso-locations/montes-del-plata-mill?cc-option-checkbox=Essential [Accessed on 6 December 2019].

Stora Enso (n.d.2) '*Veracell Mill*'. Available from: https://www.storaenso.com/en/about-stora-enso/stora-enso-locations/veracel-mill [Accessed on 6 December 2019].

Suorsa, J. (2018) '*Biggest Finnish forest industry companies*'. Available from: https://www.forestindustries.fi/statistics/forest-industry/ [Accessed on 14 March 2019].

Suorsa, J. (2019) '*Finnish Forest Industries 2017*'. Available from: https://www.forestindustries.fi/statistics/forest-industry/ [Accessed on 14 March 2019].

Thijssens, T., Bollen, L. & Hassink, H. (2016) 'Managing sustainability reporting: many ways to publish exemplary reports'. *Journal of Cleaner Production*, 136: 86-101.

UPM (2016) '*Actions and transparent reporting grant UPM a place on the CDP Climate A List*'. Available from: https://www.upm.com/news-and-stories/articles/2016/10/actions-and-transparent-reporting-grant-upm-a-place-on-the-cdp-climate-a-list/ [Accessed on 31 May 2020].

UPM (2018a) *Annual Report 2018*. Available from: https://www.upm.com/investors/reports-and-presentations/2018/

UPM (2018b) *GRI Content Index*. Available from: https://www.upm.com/responsibility/fundamentals/reporting-and-data/

UPM (n.d.) '*Responsibility*'. Available from: https://www.upm.com/responsibility/ [Accessed on 22 March 2019].

UPM (2019a) *UPM Greenhouse Gas Inventory 2018*. Available from: https://www.upm.com/responsibility/fundamentals/reporting-and-data/

UPM (2019b) '*United Nations recognises UPM as one of the 36 Global Compact LEAD participants demonstrating world-class commitment to corporate responsibility*'. Available from: https://www.upm.com/about-us/for-media/releases/2019/09/united-nations-recognises-upm-as-one-of-the-36-global-compact-lead-participants-demonstrating-world-class-commitment-to-corporate-responsibility/ [Accessed on 31 May 2020].

UPM (2020a) '*CDP recognises UPM with an exceptional AAA leadership position for its environmental performance*'. Available from: https://www.upm.com/about-us/for-media/releases/2020/02/cdp-recognises-upm-with-an-exceptional-aaa-leadership-position-for-its-environmental-performance/ [Accessed on 31 May 2020].

UPM (2020b) '*Acknowledged industry leader*'. Available from: https://www.upm.com/responsibility/fundamentals/recognitions/ [Accessed on 31 May 2020].

Waddock, S. & Googins, B.K. (2011) 'The Paradoxes of Communicating Corporate Social Responsibility'. In: Ihlen, Ø., Bartlett, J.L., and May, S. *The Handbook of Communication and Corporate Social Responsibility*. [Online]: John Wiley & Sons, Inc.

Water footprint network (2017) '*Product gallery*'. Available from: https://waterfootprint.org/en/resources/interactive-tools/product-gallery/ [Accessed on 8 March 2020].

WBCSD (2019) *Reporting Matters.* Available from: https://docs.wbcsd.org/2019/10/WBCSD_Reporting_Matters_2019.pdf [Accessed on 31 May 2020].

WBCSD & WRI (2004) *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*.

WRI & WBSCD (2005) *CALCULATION TOOL FOR DIRECT EMISSIONS FROM STATIONARY COMBUSTION: Version 3.0*.

Yin, R.K. (2018) *Case study research and applications: Design and methods* (6th edition). Los Angeles: SAGE

Zsóka, A. & Vajkai, E. (2018) 'CORPORATE SUSTAINABILITY REPORTING: SCRUTINISING THE REQUIREMENTS OF COMPARABILITY, TRANSPARENCY AND REFLECTION OF SUSTAINABILITY PERFORMANCE'. *Society and Economy*, 40, (1): 19–44.

APPENDICES

Appendix I: Environmental variables and measurement units in Stora Enso's sustainability report

Measured variable	Measurement unit	p.
Share of biomass in internal energy production	Percentage	32, 39
Utilisation of process waste and residual materials	Percentage	32, 36
Share of withdrawn water recycled back to the local environment after purification	Percentage	35
Share of withdrawn water consumed in production	Percentage	35
Share of total withdrawn water from surface water	Percentage	35
Share of total withdrawn water from municipal sources	Percentage	35
Share of total withdrawn water from groundwater	Percentage	35
Mills operating in water basins where water stress occurs	Number of mills	35
Total proportion of withdrawn water from water-stressed basins	Percentage	35
Share of internally recycled water in water usage	Percentage	36
Process waste to landfill	Tonnes	36
Non-process waste	Tonnes	36
Process waste to on-site storage facilities	Tonnes	36
Paper for Recycling: procurement by origin	Thousand tonnes	36
Hazardous waste (defined as oils, solvents, paints, laboratory chemicals and batteries)	Tonnes	37
Sludge classified as hazardous waste	Tonnes	37
Paper for recycling (PfR)	Million tonnes	37
PfR utilization rate in paper and board production	Percentage	37
Phosphorus	Tonnes AND g/tonne	37
Nitrogen	1000 tonnes AND g/tonne	37
Absorbable organic halogen compounds (AOX)	Tonnes AND g/tonne	37
Chemical oxygen demand (COD)	1000 tonnes AND kg/tonne	37
Fuels (distribution by type)	Terajoules (TJ)	38
Electricity (distribution by source)	Terawatt hours (TWh)	38

Water withdrawal and consumption as well as process water discharges	Million m³ AND m³/tonne	38
Heat consumption	Petajoule (PJ) AND gigajoule (GJ) /tonne	39
Electricity consumption	Terawatt hours (TWh) AND MWh/tonne	39
Energy self-sufficiency rate	Percentage	39
Electricity self-sufficiency level	Percentage	39
Share of purchased electricity from low-fossil carbon sources	Percentage	39
Coverage of energy needs from existing contracts and internal electricity generation capacity for the next 5 years	Percentage	39
SO2 emissions	Tonnes	39
NOx emissions	Tonnes	39
Emissions of fine particles	Tonnes	39
Wood	Million m³	40
Fossil fuels	Petajoule (PJ)	40
External biomass energy	Petajoule (PJ)	40
Water	Million m³	40
Purchased electricity	Terawatt hours (TWh)	40
Purchased pulp and paper for recycling	Million tonnes	40
Pigments, fillers, starch, and other chemicals	Million tonnes	40
Externally delivered electricity/ heat/ steam	Terawatt hours (TWh)	40
Residuals for beneficial use	Million tonnes	40
Environmental incidents (involving a non-compliance with environmental legislation or permit, or a significant stakeholder concern related to environmental performance.)	Written description	41
CO2 emissions reduction (from 2010 base-year level)	Percentage	42
Greenhouse gas emissions (GHG) [Scopes 1 & 2]	CO2e million tonnes AND CO2e kg/tonne	44
Share of carbon neutral CO2 emissions from Stora Enso's own operations	Percentage	46
Reduction in CO2 emissions per saleable tonne of board, pulp, and paper	Percentage	46

Reduction in direct and indirect CO2e emissions in absolute terms (from 2010 base-year level)	Percentage	46
Reduction in direct CO2e emissions per unit of sales production (from 2010 base-year level)	Percentage	46
Reduction in CO2e emissions resulting from the generation of purchased electricity and heat per unit of sales production (from 2010 base-year level)	Percentage	46
Total direct and indirect CO2e emissions from board, pulp, and paper mills	Million tonnes	46
Heat supplied from production units to local district heating systems and industrial partners	Petajoule (PJ)	46
Greenhouse gas emissions in relation to production	CO2e million tonnes AND CO2e kg/tonne	47
Trends for greenhouse gas emissions in relation to production in millions of tonnes and kg/tonne (between 2006 and 2018)	Percentage	47
Scope 1 emissions in relation to carbon footprint	Percentage	47, 48
Scope 2 emissions in relation to carbon footprint	Percentage	47, 48
Scope 3 emissions in relation to carbon footprint	Percentage	47, 48
Distribution of Scope 3 emissions by categories (sourcing and manufacturing of raw materials and services, further processing of products by customers, transportation)	Percentage	47
Carbon footprint (Scopes 1, 2 & 3 individually and in total)	Fossil CO2 equivalent as million tonnes	47
Trends for Scope 1,2 & 3 and total emissions (between 2014 and 2018)	Percentage	47
Location-based Scope 2 emissions	Million tonnes of CO2e	47
Forest certification coverage for owned and managed lands	Percentage	49
Total amount of wood delivered to mills	Million m^3	51
Wood from managed semi-natural forests in Europe	Percentage	51
Wood from tree plantations	Percentage	51
Wood procurement by region	Million m^3	51
Total area of restored rainforest (by Veracel) between 1994-2018	Hectares	52

Field trials area for developing genetically engineered clones	Hectares	52
Total area of owned and leased land	Hectares	52
3rd party certified wood in total wood supply	Percentage	52
Forests, plantations, and lands owned	Hectares (ha)	54
Forests and plantations leased and managed	Hectares (ha)	54

Appendix II: Environmental variables and measurement units in Metsä Group's sustainability report

Measured variable	Measurement unit	p.
Traceability of used wood	Percentage	28
Certified wood	Percentage	28, 32
Total amount of procured wood	Million m³	30
Wood procurement by country	Percentage	31
Forest certification coverage in wood procurement by area	Percentage	33
Fossil CO2 emissions per product tonne 2009-2020: Performance 2018	Percentage	38, 42, 44, 45
Energy efficiency improvement 2009-2020: Performance 2018	Percentage	38, 40, 42
Process water use per product tonne 2010-2020: Performance 2018	Percentage	38, 40, 46
Wood-based raw materials: wood	1000 m³	38
Wood-based raw materials: pulp	1000 tonnes	38
Wood-based raw materials: recovered paper	1000 tonnes	38
Other raw materials: pigments	1000 tonnes	38
Other raw materials: adhesives	1000 tonnes	38
Purchased energy: Fossil fuels	Terawatt hours (TWh)	38
Purchased energy: Biofuels	Terawatt hours (TWh)	38
Purchased energy: Electricity	Net values indicated as terawatt hours (TWh)	38
Purchased energy: Heat	Net values indicated as terawatt hours (TWh)	38
Proportion of surface water from total water intake	Percentage	38

Water intake: Surface water	1000 m³	38
Water intake: Groundwater	1000 m³	38
Emissions to air: Biogenic carbon dioxide (CO2)	1000 tonnes	39
Emissions to air: Fossil carbon dioxide (CO2)	1000 tonnes	39
Emissions to air: Nitrogen oxides (as NO2)	1000 tonnes	39
Sulphur (as SO2)	1000 tonnes	39
Particles	1000 tonnes	39
Renewable energy used in own production	Terawatt hours (TWh)	39
Discharges to water: Wastewater flow	1000 m³	39
Discharges to water: Total suspended solids	Tonnes	39
Discharges to water: Nitrogen (N)	Tonnes	39
Discharges to water: Chemical oxygen demand (COD)	Tonnes	39
Discharges to water: Biological oxygen demand (BOD)	Tonnes	39
Discharges to water: AOX	Tonnes	39
Discharges to water: Phosphorus (P)	Tonnes	39
Landfill waste	1000 tonnes	39
Hazardous waste	1000 tonnes	39
Renewable energy: Biofuels	Terawatt hours (TWh)	39
Share of renewable energy in operations	Percentage	42
Share of renewable fuels in operations	Percentage	42
Production facilities with bioboilers and on-site renewable energy production	Number of production facilities	42
Total energy use	Terawatt hours (TWh)	42
Wood-based renewable fuel production	Terawatt hours (TWh)	42
Energy content of sold biomass-based fuels	Terawatt hours (TWh)	42
Energy efficiency improvement	Percentage	43
Primary energy consumption	Percentage	43
Fuel consumption	Percentage	43
Share of renewable energy in production	Percentage	43
Reduction of particles emissions	Percentage	44
Increase of odorous total reduced sulphur (TRS) compounds	Percentage	44
Direct greenhouse gas emissions (Scope 1)	Tonnes of fossil CO2	44
Fossil greenhouse gas emissions from the consumption of purchased electricity and heat (Scope 2) with market-based method	Tonnes	44

Fossil greenhouse gas emissions from the consumption of purchased electricity and heat (Scope 2) with location-based method	Tonnes	44
Emissions causing acidification	Tonnes SO2e	44
Decrease in total acidification effect 2010-2018	Percentage	44
ISO 14 001 certified mills	Written description	46
Environmental incidents	Written description	46
Clear permit limit violations	Number of violations	46
Minor, momentary non-compliances	Number of non-compliances	46
Share of surface water from total water intake	Percentage	46
Share of ground water from total water intake	Written description	46
Share of cooling water from total water intake	Written description	46
Prevention or weakening of other parties' access to water	Written description	46
Fossil greenhouse gas effect by business area	1000 tons of CO2 (chart is illustrative only, no exact figures provided)	47
Eutrophication by business area (chart includes phosphorus, BOD, nitrogen, and NOx emissions)	P equivalent tons (chart is illustrative only, no exact figures provided)	47
Acidification by business area (chart consists of sulphur and NOx emissions)	SO2 equivalent tons (chart is illustrative only, no exact figures provided)	47
Process water usage	M^3 / product tonne (chart is illustrative only, no exact figures provided)	47

Appendix III: Environmental variables and measurement units in UPM's sustainability report

Measured variable	**Measurement unit**	**p.**
Fossil CO2 Emissions related to energy use	Million tonnes AND percentage	7
Share of biomass-based fuels of fuel usage	Percentage	13

Forests and plantation land, own and leased	1000 hectares (ha)	69
Forest growth	Million m^3	69
Wood harvested from UPM forests and plantations	Million m^3	69
Forest area distribution by country	Percentage	69
Preventive environmental observations and near-misses reported	Number of cases	70
Environmental deviations at mills	Number of deviations	71
Environmental costs (mainly from effluent treatment and waste management)	Million euros	71
COD load	Kg / tonne of paper AND kg / tonne of chemical pulp	73
AOX load per tonne of bleached chemical pulp	Kg/ tonne	73
Process wastewater volumes	m^3 / tonne of paper AND m^3 / tonne of chemical pulp	73
Impact of energy-saving investments	Million euros, tonnes of CO2, megawatt hours (MWh)	74
Capacity to generate power through own power plants and shareholdings	Nominal megawatts (MW)	75
Electricity generation through own power plants and shareholdings	Terawatt hours (TWh)	75
Fuels used for heat generation	Terawatt hours (TWh)	75
Fossil carbon dioxide emissions (Scopes 1 & 2)	Million tonnes	75
Acidifying flue gases (SO2 and NOX)	Million tonnes	75
Total waste to landfills	1000 tonnes	77
Total process waste recycled or recovered	Percentage	77
Indirect upstream: certified wood	percentage	78
Indirect upstream: wood origin known	percentage	78
Indirect upstream: seedlings planted	Number of seedlings	78
Indirect upstream: UPM forests available for free recreation use	Hectares (ha)	78
Indirect upstream: ecosystem services	Million euros	78
Indirect upstream: fossil CO2 emissions (scope 2 & 3 upstream)	Million tonnes	78
Indirect upstream: water intensive production sites located in water abundant areas	Percentage	78

Indirect upstream: restricted chemical substances in UPM screening	Number of chemicals	78
Direct upstream – raw materials: wood	Million m³	78
Direct upstream – raw materials: recovered paper	Million tonnes	78
Direct upstream – raw materials: minerals	Million tonnes	78
Direct upstream – raw materials: market pulp	Million tonnes	78
Direct upstream – raw materials: purchased paper for converting	Million tonnes	78
Direct upstream – raw materials: plastics, adhesives, resins, films	Million tonnes	78
Direct upstream – raw materials: co-mingled domestic waste	Million tonnes	78
Direct upstream: costs, raw materials	Billion euros	78
Direct upstream – water uptake: surface water	Million m³	78
Direct upstream – water uptake: ground water	Million m³	78
Direct upstream – water uptake: communal water	Million m³	78
Direct upstream – energy: renewable fuels	Gigawatt hours (GWh)	78
Direct upstream – energy: fossil fuels	Gigawatt hours (GWh)	78
Direct upstream – energy: purchased electricity and heat	Gigawatt hours (GWh)	78
Forests and plantations	Hectares (ha)	78
Direct downstream – emissions to air: Nitrogen oxides	Tonnes	79
Direct downstream - emissions to air: Sulphur dioxide	Tonnes	79
Direct downstream - emissions to air: Particulates	Tonnes	79
Direct downstream - emissions to air: VOC	Tonnes	79
Direct downstream - emissions to air: Fossil CO2 emissions (Scope 1)	Million tonnes	79
Direct downstream - emission to water: Process wastewater	Million m³	79
Direct downstream - emission to water: Cooling water	Million m³	79
Direct downstream – emission to water: Biological oxygen demand (7days)	Tonnes	79
Direct downstream - emission to water: Chemical oxygen demand	Tonnes	79
Direct downstream - emission to water: Absorbable organic halogens	Tonnes	79
Direct downstream – solid process waste: to landfills	Dry tonnes	79
Direct downstream – solid process waste: to temporary storage	Dry tonnes	79

Direct downstream – solid process waste: to incineration without energy recovery	Dry tonnes	79
Direct downstream – solid process waste: hazardous waste for special treatment	Tonnes	79
Indirect downstream: value of products eligible for ecolabelling	Billion euros	79
Indirect downstream: virgin materials replaced	Million tonnes	79
Indirect downstream: carbon stored in products	Million tonnes	79
Indirect downstream: fossil CO2 emissions (scope 3 downstream)	Million tonnes	79
Indirect downstream: Biofore Share and Care donations and sponsorships	Million euros	79
Impact valuation of net carbon binding of forests	Million euros	79
Impact valuation of GHG emissions	Million euros	79
Impact valuation of recreational use of forests	Million euros	79
Impact valuation of ash used as raw material	Million euros	79
Impact valuation of landfilled waste	Million euros	79
Solid waste to landfills per tonne of paper	Kg/tonne	193
Solid waste to landfills per tonne of converted product	Kg/tonne	193
Fossil carbon dioxide emissions per tonne of paper	Kg CO2 / tonne	193
Electricity sourcing	Terawatt hours (TWh)	193